



Service Manual

# Service Manual

## KM380



Model : KM380



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## REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
C.G.KANG	Mar. 5 2007	0.1	-	V08d
C.G.KANG	Apr. 10 2007	0.2	-	V10a

\* The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

\* This manual provides the information necessary to install, program, operate and maintain the KM380 Series.



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# 1. INTRODUCTION

## 1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the KM380 Series.

## 1.2 Regulatory Information

### A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges you're your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. LGE does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. LGE will not be responsible for any charges that result from such unauthorized use.

### B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

### C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the KM380 Series or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

### D. Maintenance Limitations

Maintenance limitations on the KM380 Series must be performed only at the LGE or its authorized agents. The user may not make any changes and/or repairs except asspecifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

# 1. INTRODUCTION

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## **E. Notice of Radiated Emissions**

The KM380 Series complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

## **F. Pictures**

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

## **G. Interference and Attenuation**

An KM380 Series may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

## **H. Electrostatic Sensitive Devices**

### **ATTENTION**

Boards, which contains Electrostatic Sensitive Device(ESD), are indicated by the sign.

Following information is ESD handling: Service personnel should ground themselves by using a wrist strap when exchange system boards.

When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded. Use a suitable, grounded soldering iron. Keep sensitive parts in these protective packages until these are used. When returning system boards or parts such as EEPROM to the factory, use the protective package as described.

### 1.3 ABBREVIATION

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
CLA	Cigar Lighter Adapter
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli-watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
EGPRS	Enhanced General Packet Radio Service
EL	Electroluminescence
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Interface Bus
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode

# 1. INTRODUCTION

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LGE	LG Electronics
OPLL	Offset Phase Locked Loop
PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol
8PSK	8 Phase Shift Keying

## 2. GENERAL PERFORMANCE

### 2.1 H/W Feature

Item	Feature	Comment
Standard Battery	Li-ion, 800mAh	
AVG TCVR Current	tbd	@PL5
Standby Current	tbd	@PP9
Talk time	tbd	
Standby time	Over 250 hours (Paging Period:9, RSSI: -85dBm)	
Charging time	Under 3 hours	
RX Sensitivity	EGSM: -105dBm↓, DCS/PCS: -105dBm↓	
TX output power	EGSM : 32.5dBm (@PL 5) DCS/PCS: 30/30dBm (@PL 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	Main 240 x 320 pixels, 2" ± QVGA, 265K color,	
Status Indicator	Navi, Send, Call End, Back and etc. Key are implemented by touchpad.  CLEAR, SEND, END/PWR, MP3, AF/Camera double action, Volume Up, Volume Down, Lock	
ANT	Built in antenna	
EAR Phone Jack	18pin multi port Headset jack (Call/Music) 3.5pi Stereo Jack. (Music Only)	
PC Synchronization	Yes	
Speech coding	HR/EFR/FR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Buzzer	No	
Voice Recoding	Yes	
C-Mic	Yes	
Receiver	Yes	
Travel Adapter	Yes	
Options	Bluetooth hands-free kit, Data Kit	

## 2. GENERAL PERFORMANCE

### 2.2 Technical specification

Item	Description	Specification					
1	Frequency Band	<b>GSM900</b> • TX: 890 + 0.2 x n MHz • RX: 935 + 0.2 x n MHz ( n = 1 ~ 124 ) <b>EGSM</b> • TX: 890 + 0.2 x (n-1024) MHz • RX: 935 + 0.2 x (n-1024) MHz ( n = 975 ~ 1023 ) <b>DCS1800</b> • TX: 1710 + ( n-511 ) x 0.2 MHz ( n = 512 ~ 885) • RX: TX + 95 MHz <b>PCS1900</b> • TX: 1850.2 + ( n-512 ) x 0.2 MHz ( n = 512 ~ 810) • RX: TX + 80MHz					
2	Phase Error	RMS < 5 degrees Peak < 20 degrees					
3	Frequency Error	< 0.1ppm					
4	Power Level	<b>GSM900/EGSM</b>					
		Level	Power	Toler.	Level	Power	Toler.
		5	33 dBm	±2dB	13	17 dBm	±3dB
		6	31 dBm	±3dB	14	15 dBm	±3dB
		7	29 dBm	±3dB	15	13 dBm	±3dB
		8	27 dBm	±3dB	16	11 dBm	±5dB
		9	25 dBm	±3dB	17	9 dBm	±5dB
		10	23 dBm	±3dB	18	7 dBm	±5dB
		11	21 dBm	±3dB	19	5 dBm	±5dB
		12	19 dBm	±3dB			
		<b>DCS1800/PCS1900</b>					
		Level	Power	Toler.	Level	Power	Toler.
		0	30 dBm	±2dB	8	14 dBm	±3dB
		1	28 dBm	±3dB	9	12 dBm	±4dB
		2	26 dBm	±3dB	10	10 dBm	±4dB
		3	24 dBm	±3dB	11	8 dBm	±4dB
		4	22 dBm	±3dB	12	6 dBm	±4dB
		5	20 dBm	±3dB	13	4 dBm	±4dB
		6	18 dBm	±3dB	14	2 dBm	±5dB
		7	16 dBm	±3dB	15	0 dBm	±5dB

## 2. GENERAL PERFORMANCE

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	<b>GSM900/EGSM</b>	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-63
		3,000 ~ 6,000	-65
		6,000	-71
		<b>DCS1800/PCS1900</b>	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-65
		3,000 ~ 6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	<b>GSM900/EGSM</b>	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24



## 2. GENERAL PERFORMANCE

Item	Description	Specification		
6	Output RF Spectrum (due to switching transient)	<b>DCS1800/PCS1900</b>		
		Offset from Carrier (kHz).		Max. (dBm)
		400		-22
		600		-24
		1,200		-24
		1,800		-27
7	Spurious Emissions	Conduction, Emission Status		
8	Bit Error Ratio	<b>EGSM</b> BER (Class II) < 2.439% @-102dBm		
		<b>DCS1800/PCS1900</b> BER (Class II) < 2.439% @-100dBm		
9	Rx Level Report accuracy	$\pm 3$ dB		
10	SLR	$8 \pm 3$ dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
12	RLR	$2 \pm 3$ dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	2	-7
		500	*	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.		

## 2. GENERAL PERFORMANCE

Item	Description	Specification	
14	STMR	13 ±5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (26 MHz) tolerance	≤ 2.5ppm	
19	32.768KHz tolerance	≤ 30ppm	
20	Power consumption	Standby - Normal ≤ 3 mA(@PP9)	
21	Talk Time	EGSM/Lvl 7 (Battery Capacity 800mA):180 min EGSM/Lvl12(Battery Capacity 800 mA):320min	
22	Standby Time	Under conditions, at least 300 hours: 1. Brand new and full 800mAh battery 2. Full charge, no receive/send and keep GSM in idle mode. 3. Broadcast set off. 4. Signal strength display set at 3 level above. 5. Backlight of phone set off.	
23	Ringer Volume	At least 65 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
24	Charge Current	Fast Charge : < 400 mA Slow Charge: < 120 mA	
25	Antenna Display	Antenna Bar Number	Power
		7	>-92 dBm ~
		5	-97dBm ~ -93dBm
		4	-100dBm ~ -98dBm
		2	-103dBm ~ -101dBm
		1	-105dBm ~ -104dBm
		0	< -106 dBm
		Off	No Service

## 2. GENERAL PERFORMANCE

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Item	Description	Specification	
26	Battery Indicator	Battery Bar Number	Voltage( $\pm 0.05V$ )
		3	3.69V ~ 4.2V
		2	3.53V ~ 3.69V
		1	3.43V ~ 3.53V
		0	3.30V ~ 3.43V
27	Low Voltage Warning	3.53V↓ $\pm 0.05V$ (Call)	
		3.43V↓ $\pm 0.05V$ (Standby)	
28	Forced shut down Voltage	3.3 $\pm$ 0.05 V	
29	Battery Type	Li-ion Battery or Li-Polymer Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 800mAh	
31	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60Hz Out put: 4.8, 0.9A	

## 2. GENERAL PERFORMANCE

\* EDGE RF Specification (Option: is not serviced for “EDGE mode”)

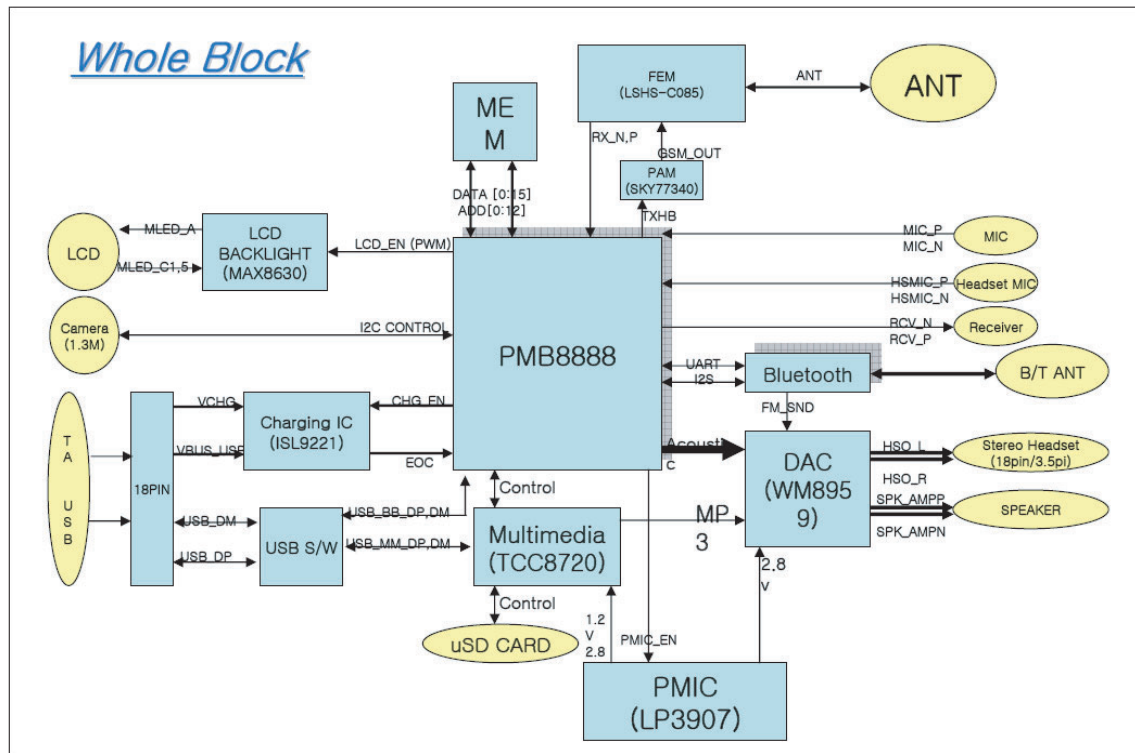
Item	Description	Specification					
1	RMS EVM	$\leq 9\%$					
2	Peak EVM	$\leq 30\%$					
3	95 <sup>th</sup> Percentile EVM	$\leq 15\%$					
4	Origin Offset Suppression	$\geq 30\text{dB}$					
5	Power Level	<b>GSM900/EGSM</b>					
		Level	Power	Toler.	Level	Power	Toler.
		5	27dBm	$\pm 3\text{dB}$	13	17dBm	$\pm 3\text{dB}$
		6	27dBm	$\pm 3\text{dB}$	14	15dBm	$\pm 3\text{dB}$
		7	27dBm	$\pm 3\text{dB}$	15	13dBm	$\pm 3\text{dB}$
		8	27dBm	$\pm 3\text{dB}$	16	11dBm	$\pm 5\text{dB}$
		9	25dBm	$\pm 3\text{dB}$	17	9dBm	$\pm 5\text{dB}$
		10	23dBm	$\pm 3\text{dB}$	18	7dBm	$\pm 5\text{dB}$
		11	21dBm	$\pm 3\text{dB}$	19	5dBm	$\pm 5\text{dB}$
		12	19dBm	$\pm 3\text{dB}$			
		<b>DCS1800, PCS1900</b>					
		Level	Power	Toler.	Level	Power	Toler.
		0	26/25dBm	$\pm 3\text{dB}$	8	14 dBm	$\pm 3\text{dB}$
		1	26/25dBm	$\pm 3\text{dB}$	9	12 dBm	$\pm 4\text{dB}$
		2	26/25dBm	$\pm 3\text{dB}$	10	10 dBm	$\pm 4\text{dB}$
		3	24 dBm	$\pm 3\text{dB}$	11	8 dBm	$\pm 4\text{dB}$
		4	22 dBm	$\pm 3\text{dB}$	12	6 dBm	$\pm 4\text{dB}$
		5	20 dBm	$\pm 3\text{dB}$	13	4 dBm	$\pm 4\text{dB}$
		6	18 dBm	$\pm 3\text{dB}$	14	2 dBm	$\pm 5\text{dB}$
		7	16 dBm	$\pm 3\text{dB}$	15	0 dBm	$\pm 5\text{dB}$
6	Output RF Spectrum (due to modulation)	<b>GSM900/EGSM</b>					
		Offset from carrier(kHz)			Max. dBc		
		100			+0.5		
		200			-30		
		250			-33		
		400			-54		
		600 ~ <1,200			-60		
		1,200 ~ <1,800			-60		
		1,800 ~ <3,000			-63		
		3,000 ~ <6,000			-65		
		6,000			-71		

## 2. GENERAL PERFORMANCE

Item	Description	Specification	
6	Output RF Spectrum (due to modulation)	<b>DCS1800, PCS1900</b>	
		Offset from carrier(kHz)	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-54
		600 ~ <1,200	-60
		1,200 ~ <1,800	-60
		1,800 ~ <3,000	-63
		3,000 ~ <6,000	-65
		6,000	-71
7	Output RF Spectrum (due to switching transient)	<b>GSM900/EGSM</b>	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	--30
		<b>DCS1800, PCS1900</b>	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	-30

## 3. TECHNICAL BRIEF

### 3.1 KM380 series Component Block diagram



**Figure 1. KM380 series Functional Block Diagram**

### 3. TECHNICAL BRIEF

#### 3.2 Baseband Processor (BBP) Introduction

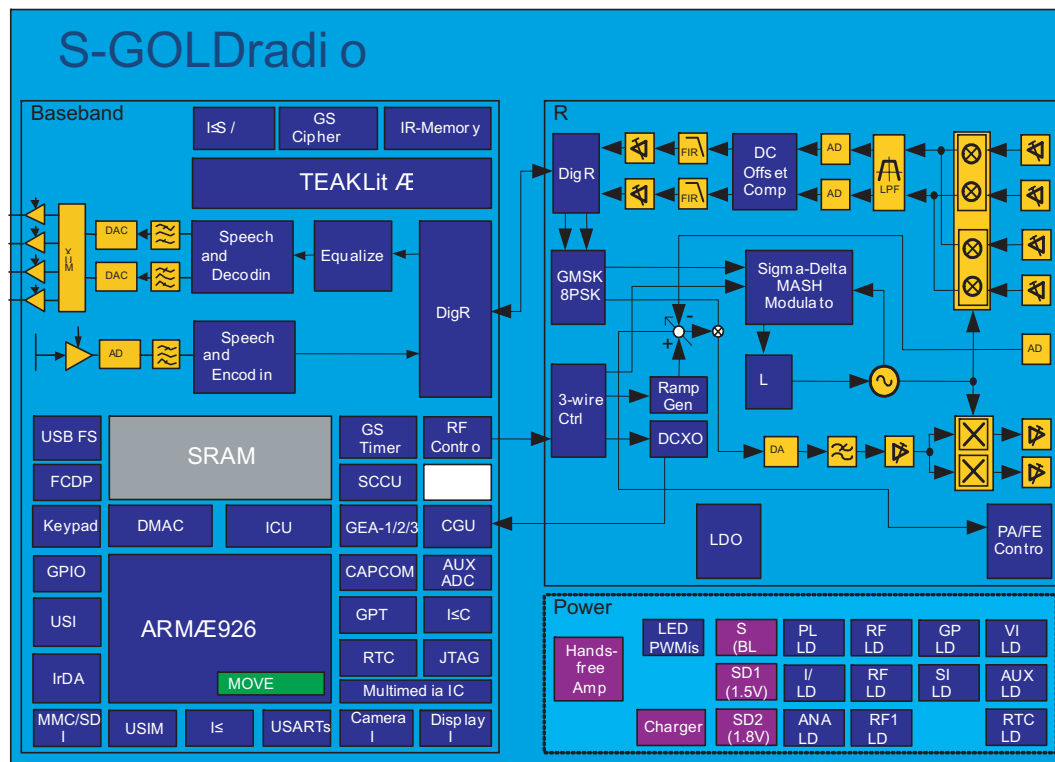


Figure 3. Top level block diagram of the S-GOLDRadio™ (PMB8888)

##### 3.2.1 General Description

S-GOLDRadio™ is a GSM/EDGE single chip mixed signal Single Chip Radio IC containing all analog and digital functionality of a cellular radio. Additionally S-GOLDRadio™ Provides multimedia extensions such as camera, software MIDI, MP3 sound. It is designed as a single chip solution, integrating the digital and mixed signal portions of the base band in 0.13um, 1.5V technology.

The chip will fully support the FR/HR/EFR/NB-AMR speech codec. S-GOLDRadio™ support multi-slot operation modes CSD/GPRS/EGPRS (up to class 12) without additional external hardware.

### 3.2.2 Block Description

- Processing core

ARM926EJ-S 32 bit processor core for controller functions. The ARM926EJ-S includes an MMU, and the Jazelle Java extension for Java acceleration.

  - TEAKLite DSP core
- ARM-Memory
  - 32k Byte Boot ROM on the AHB
  - 96k Byte SRAM on the AHB, flexibly usable as program or data RAM
  - 16k Byte Cache for Program (internal)
  - 8k Byte tightly coupled memory for Program(internal)
  - 8k Byte Cache for Data(internal)
  - 8k Byte tightly coupled memory for Data(internal)
- DSP-Memory
  - 104K x 16bit Program ROM
  - 8k x 16bit Program RAM
  - 60k x 16bit Data ROM
  - 37k x 16bit Data RAM
  - Incremental Redundancy(IR) Memory of 35904 words of 16bit
- Shared Memory Block

1.5K x 32bit Shared RAM(dual ported) between controller system and TEAKLite.
- Controller Bus system

The processor cores and their peripherals are connected by powerful buses. Multi-layer AHB for connecting the ARM and the other master capable building blocks with the internal and external memories and with the peripheral buses.
- Clock system

The clock system allows widely independent selection of frequencies for the essential parts of the S-GOLD3. Thus power consumption and performance can be optimized for each application.
- Functional Hardware block
  - CPU and DSP Timers
  - MOVE coprocessor performing motion estimation for video encoding algorithms (H.263, MPEG-4)
  - Programmable PLL with additional phase shifters for system clock generation
  - GSM Timer Module that off-loads the CPU from radio channel timing
  - GMSK / 8-PSK Modulator according to GSM-standard 05.04 (5/2000)
  - GMSK Modulator: gauss-filter with  $B \cdot T = 0.3$
  - EDGE Modulator: 8PSK-modulation with linearized GMSK-Pulse-Filter
  - Hardware accelerators for equalizer and channel decoding.
  - Incremental Redundancy memory for EDGE class 12 support
  - A5/1, A5/2, A5/3 Cipher unit
  - GEA1, GEA2, GEA3 Cipher Unit to support GPRS data transmission
  - Advanced static and dynamic power management features including TDMA-Frame synchronous low power mode and enhanced CPU modes(idle and sleep modes)



### 3. TECHNICAL BRIEF

- Pulse Number Modulation output for Automatic Frequency Correction(AFC)
- Serial RF Control interface: support of direct conversion RF
- A Universal Serial Interface(USIF) enabling asynchronous (UART) or synchronous (SPI) serial data transmission
- 1 Serial Synchronous SPI compatible interfaces in the controller domain
- 1 Serial Synchronous SPI compatible interface in the TEAKLite domain
- 2 USART with autobaud detection, hardware flow control and integrated IrDA controller supporting IrDA's SIR standard (up to 115.2Kbps)
- A dedicated Fas IfDA Controller supporting IrDA's SIR,MIR and FIR standards (up to 4Mbps)
- I2C-bus interface (e.g. connection to S/M power)
- A fast display interface supporting serial and parallel interconnection
- An ITU-R BT.656 compatible Camera interface.
- Programmable clock output for a camera
- An multimedia/Secure Digital Card Interface (MMC/SD: SDIO capable)

#### 3.2.3 External Devices connected to memory interface

Table 1. Memory interface

Device	Name	Maker	Remark
NAND FLASH	K5D1G12ACE-D075	Samsung	Synchronous / A synchronous
SDRAM	K5D1G12ACE-D075	Samsung	Synchronous 133MHz
LCD	IM200DBN7A	LGIT	8bit access 2times transmission
MP3 Decoder	TCC8720	Telechips	MP3 Decoder

#### 3.2.4 RF Interface

S-GOLDRadio uses this interface to control RF IC and Peripherals. 13 signals are provided switch on/off RF ICs Periodically each TDMA frame.

Table 2. RF Interface Spec.

Resource	Interconnection	Description
TX2	TXHB	Output High band(DCS/PCS) Tx
TX1	TXLB	Output Low band(850/900) Tx
RX1, RX1X	GSM850_RXP, GSM850_RXN	Input of GSM850 LNA
RX2, RX2X	GSM900_RXP, GSM900_RXN	Input of GSM900 LNA
RX3, RX3X	DCS1800_RXP, DCS1800_RXN	Input of DCS1800 LNA
RX4, RX4X	PCS1900_RXP, PCS1900_RXN	Input of PCS1900 LNA
PABS	PA_BAND	Select PAM operation band.
FE1, FE2	VC1, VC2	Control FEM operation band & mode
PAEN	PA_EN	PAM Enable
VRAMP	TX_RAMP	Tx Ramp signal
T_OUT6	PA_MODE_2	Select PAM operation mode (GSM/EDGE)

### 3.2.5 USART Interface

KM380 have two UART Drivers as follow :

- USART0 : SW upgrade / Calibration
- USIF : BT Interface.

Table 3. USIF Interface Spec.

Resource	Name	Remark
<b>UART0</b>		
UART0_TXD	UART_TX	Transmit Data
UART0_RXD	UART_RX	Receive Data
<b>USIF</b>		
USIF_TXD	UART_BT_TX	Transmit Data
USIF_RXD	UART_BT_RX	Receive Data
T_OUT3	UART_BT_RTS	Flow Control Signal
T_OUT4	UART_BT_CTS	Flow Control Signal

### 3.2.6 ADC channel

BBP ADC block is composed of 7 external ADC channel. This block operates charging process and other related process by reading battery voltage and other analog values.

Table 4. S-Gold3 ADC channel usage

<b>ADC channel</b>		
Resource	Interconnection	Description
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	N.C	
M3	N.C	
M4	N.C	
M5	N.C	
M6	N.C	
M7	N.C	
M8	VBAT	Battery supply voltage measure
M9	LOAD	Current consumption measure
M10	N.C	

## 3. TECHNICAL BRIEF

### 3.2.7 GPIO map

Over a hundred allowable resources, KM380 series is using as follows except dedicated to SIM and Memory. KM380 series GPIO(General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table.

Table 5. S-GOLDRadio GPIO pin Map

Port Function KEY MATRIX	Net Name	Description
KP_IN2	KP_IN(2)	
KP_IN3	KP_IN(3)	
KP_IN4	KP_IN(4)	
KP_IN5	KP_IN(5)	
KP_IN6	KP_IN(6)	
KP_OUT0	KP_OUT(0)	
KP_OUT1	KP_OUT(1)	
KP_OUT2	KP_OUT(2)	
KP_OUT3	KP_OUT(3)	
DSPIN1	KP_OUT(4)	
UART0		
UART0_RXD	UART_RX	UART, RS232 Data
UART0_TXD	UART_TX	UART, RS232 Data
UART0_RTS_N	uSD_DET	Micro SD Card Detect
UART0_CTS_N	MM_RESET	MP3 Decoder Reset
USIF		
USIF_TXD_MTSR	UART_BT_TX	
USIF_RXD_MRST	UART_BT_RX	
TOUT_3	UART_BT_RTS	Bluetooth RTS
TOUT_4	UART_BT_CTS	Bluetooth CTS
USB		
USB_DPLUS	USB_BB_DP	USB +
USB_DMINUS	USB_BB_DM	USB -
CLK		
DSPIN0	CLK32K	For FM Radio, BT CLK32K

### 3. TECHNICAL BRIEF

CAMERA I/F		
CIF_D0	CAM_D(0)	Camera DATA[0]
CIF_D1	CAM_D(1)	Camera DATA[1]
CIF_D2	CAM_D(2)	Camera DATA[2]
CIF_D3	CAM_D(3)	Camera DATA[3]
CIF_D4	CAM_D(4)	Camera DATA[4]
CIF_D5	CAM_D(5)	Camera DATA[5]
CIF_D6	CAM_D(6)	Camera DATA[6]
CIF_D7	CAM_D(7)	Camera DATA[7]
CIF_PCLK	CAM_PCLK	Camera pixel clock
CIF_HSYNC	CAM_HS	Camera H sync
CIF_VSYNC	CAM_VS	Camera V sync
CLKOUT	CAM_MCLK	Camera main clock
CIF_PD	CAM_PD	Camera power down(active high)
CIF_RESET	CAM_RESET	Camera reset
LCD I/F		
DIF_D0	DIF_D(0)	LCD data[0]
DIF_D1	DIF_D(1)	LCD data[1]
DIF_D2	DIF_D(2)	LCD data[2]
DIF_D3	DIF_D(3)	LCD data[3]
DIF_D4	DIF_D(4)	LCD data[4]
DIF_D5	DIF_D(5)	LCD data[5]
DIF_D6	DIF_D(6)	LCD data[6]
DIF_D7	DIF_D(7)	LCD data[7]
DIF_D8	DIF_D(8)	LCD data[8]
DIF_CS1	DIF_CS	LCD chip select
DIF_CS2	EHI_INT	MP3 Decoder Interrupt
DIF_CD	DIF_RS	Command Data switch
DIF_WR	DIF_WR	LCD Write
DIF_HD	EOC	Indicating End of Charging.
DIF_VD	LCD_VSYNC	VSYNC
DIF_RESET2	JACK_DET_3.5	Detect plug-in of 3.5pi Ear-Phone
I2C		
I2C_SCL	I2C_SCL	For Sub-PMIC/Audio DAC/Camera
I2C_SDA	I2C_SDA	For Sub-PMIC/Audio DAC/Camera

### 3. TECHNICAL BRIEF

SIM I/F		
CC_IO	SIM_IO	SIM CARD I/O
CC_CLK	SIM_CLK	SIM CARD CLOCK
CC_RST	SIM_RST	SIM CARD RESET
I2S1		
I2S1_CLK0		Not used
I2S1_RX		Not used
I2S1_TX		Not used
I2S1_WA0		Not used
External Memory		
MMCI_CMD	RPWRON	Remote Power On
MMCI_DAT[0]	uSD_DET_CTRL	uSD Card Detect
MMCI_CLK	TF_CLK	T-flash
MMCI_DAT[1]	BT_INT	BT Interrupt
MMCI_DAT[2]	FLIP_OPEN	Flip Open/Close Detect
MMCI_DAT[3]	HOLD	HOLD Key
Audio I/F		
EP_N, EP_P	SPK_N, SPK_P	For Speaker
HS_N, HS_P	RCV_N, RCV_P	For Receiver
EPPA1	BBP_SND_L	For Speaker
EPREF		Reference
EPPA2	BBP_SND_R	For Speaker
MICN1	MIC_N	For Mic
MICP1	MIC_P	For Mic
MICN2	HS_MIC_N	For Headset Mic
MICP2	HS_MIC_P	For Headset Mic
VMIC	MICBIAS	Power for MIC
ADC		
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2		
M3		
M7	H/W VERSION	S-GOLDRadio H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	LOAD	Current consumption measure
M10	N.C	

### 3. TECHNICAL BRIEF

Reference		
VREF		
IREF		
JTAG I/F		
TDO	TDO	JTAG
TDI	TDI	JTAG
TMS	TMS	JTAG
TCK	TCK	JTAG
TRST_n	_TRST	JTAG
RTCK	RTCK J	TAG
Memory		
EBU_AD[0]	DATA(0)	
EBU_AD[1]	DATA (1)	
EBU_AD[2]	DATA (2)	
EBU_AD[3]	DATA (3)	
EBU_AD[4]	DATA (4)	
EBU_AD[5]	DATA (5)	
EBU_AD[6]	DATA (6)	
EBU_AD[7]	DATA (7)	
EBU_AD[8]	DATA (8)	
EBU_AD[9]	DATA (9)	
EBU_AD[10]	DATA (10)	
EBU_AD[11]	DATA (11)	
EBU_AD[12]	DATA (12)	
EBU_AD[13]	DATA (13)	
EBU_AD[14]	DATA (14)	
EBU_AD[15]	DATA (15)	
EBU_WR_N	_WR	
EBU_RD_N	_RD	
EBU_BC0_N	_BC0	
EBU_BC1_N	_BC1	
EBU_A[0]	ADD(0)	
EBU_A[1]	ADD (1)	
EBU_A[2]	ADD (2)	
EBU_A[3]	ADD (3)	
EBU_A[4]	ADD (4)	

### 3. TECHNICAL BRIEF

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EBU _A[5]	ADD (5)	
EBU _A[6]	ADD (6)	
EBU _A[7]	ADD (7)	
EBU _A[8]	ADD (8)	
EBU _A[9]	ADD (9)	
EBU _A[10]	ADD (10)	
EBU _A[11]	ADD (11)	
EBU _A[12]	ADD (12)	
EBU _A[13]	ADD (13)	
EBU _A[14]	ADD (14)	
EBU _A[15]	ADD (15)	
EBU _A[16]	ADD (16)	
EBU _A[17]	ADD (17)	
EBU _A[18]	ADD (18)	
EBU _A[19]	ADD (19)	
EBU _A[20]	ADD (20)	
EBU _A[21]	ADD (21)	
EBU _A[22]	ADD (22)	
EBU _A[23]	ADD (23)	
EBU _A[24]	ADD (24)	
EBU _CS0_n	_FLASH1_CS	
EBU _CS1_n	SDRAM_CS	
EBU _CS2_n	nCS1	
EBU _CS3_n		
EBU _ADV_n		
EBU _RAS_n	_RAS	
EBU _CAS_n	_CAS	
EBU _WAIT_n		
EBU _SDCLKO	SDCLKO	
EBU _SDCLKI	SDCLKI	
EBU _BFCLKO		
EBU _BFCLKI		
EBU _CKE	CKE	
Memory		
FCDP_RBn	FCDP	

### 3. TECHNICAL BRIEF

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TDMA I/F		
T_OUT3	UART_BT_RTS	
T_OUT4	UART_BT_CTS	
T_OUT5	CHG_EN	
T_OUT6	PA_MODE_2	PAM
T_OUT7	HOOK_DETECT	
T_OUT8	VBUS_OVP	USB DETECT
System Port		
CLKOUT0 [ $\leq 26\text{MHz}$ ]		Not used
F26M	26MHZ_MCLK	26M Main Clock
F32K		to 32k crystal
OSC32K		to 32k crystal
RESET_n	_RESET	
TRIG_OUT	TRIG_OUT	
RTC_OUT	RTC_OUT	



## 3. TECHNICAL BRIEF

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### 3.3 Power management IC

#### 3.3.1 General Description

S-GOLDRadio has a highly integrated Power and Battery Management block for mobile handsets.

##### **Block Description**

- Highly efficient step-down converter for main digital baseband supply including Core, DSP and memory interface (External Bus Unit).
- Support of S-GOLD standby power-down concept
- Low-drop-out (LDO) regulators for Flash and mobile RAM memory devices
- Voltage independent switching of two SIM cards
- LDO regulators for baseband I/O supply
- LDO regulator for analog mixed-signal section of S-GOLD
- Low-noise LDO regulators for RF devices
- Supply for Bluemoon Single, Infineon's single chip solution for Bluetooth
- Audio amplifier 8 Ohms for handsfree operation and ringing
- Charge Control for charging Li-Ion/Polymer batteries under software control
- Pre-charge current generator with selectable current level
- RTC regulator with ultra-low quiescent current
- USB interface support for peripheral and mini-host mode
- Vibrator driver with adjustable voltage
- Fully controllable by software via I2C - Bus
- Temperature and battery voltage sensors
- Interrupt channels for peripherals

### 3. TECHNICAL BRIEF

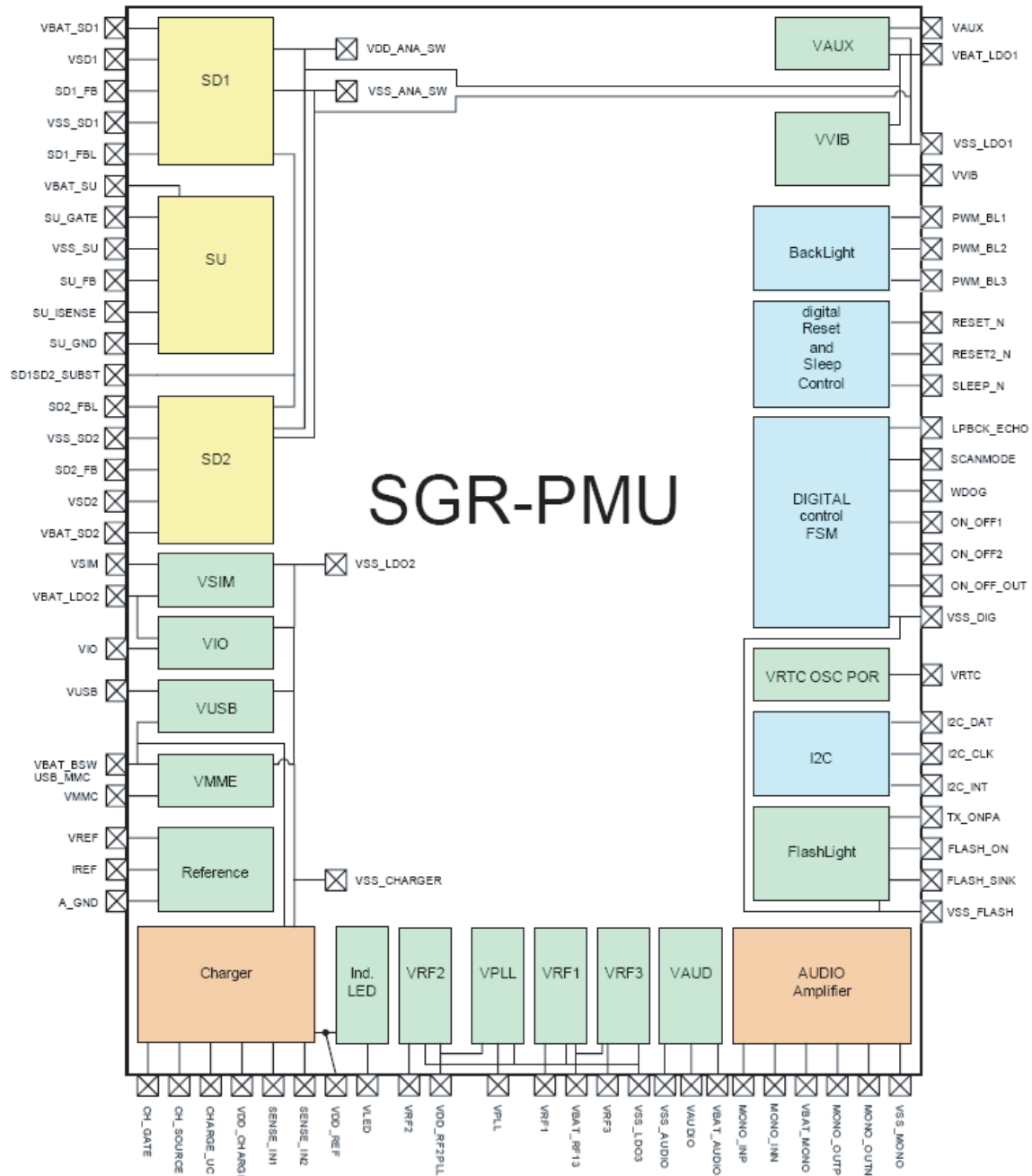
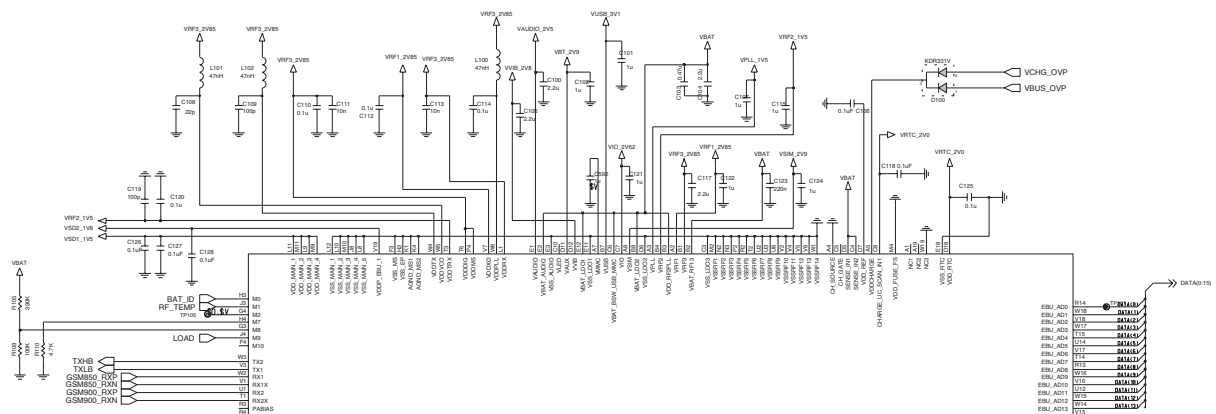


Figure 4. Top level block diagram of the PMU Block of PMB8888

### 3. TECHNICAL BRIEF

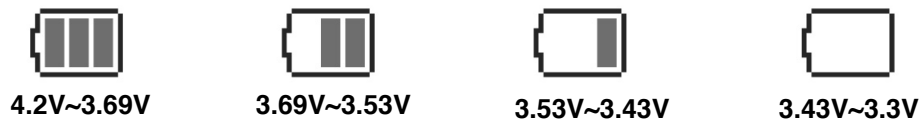
Table 6. LDO Output Table of SM-Power

LDO	Net name	Output Voltage	Output Current	Usage
SD1	VSD1_1V5	1.5V	700mA	Core & for LDO
SD2	VSD2_1V8	1.8V	700mA	Memory
VAUX	VBT_2V9	2.9V	400mA	BT Power
VIO	VIO_2V62	2.62V	300mA	Peripherals
VSIM	VSIM_2V9	2.9V	150mA	SIM card
VMME	-	2.9V	150mA	Not used
VAUDIO	VAUDIO_2V5	2.5V	620mA	
VUSB	VUSB_3V1	3.1V	262mA	USB Switch
VRF1	VRF1_2V85	2.85V	200mA	
VRF2	VRF2_1V5	1.5V	240mA	
VRF3	VRF3_2V85	2.85V	470mA	
VPLL	VPLL_1V5	1.5V	150mA	S-GOLDRadio PLL
VRTC	VRTC_2V0	2.0V	20mA	RTC
VVIB	VVIB_2V8	2.8V	450mA	



### 3.3.2 Charging

KM380 charge the battery using an external charging IC of Intersil ISL9221 for Li-Ion or Li-Polymer battery in 4.2 Volts level.



**Figure 7. Battery Block Indication**

- 1 Charging method : CC-CV
- 2 Charger detect voltage : 4.0 V
- 3 Charging time : 2h 30m
- 4 Charging current : 400 mA
- 5 CV voltage : 4.2 V
- 6 Cutoff current : 110 mA
- 7 Full charge indication current (icon stop current) : 110 mA
- 8 Recharge voltage : 4.16 V
- 9 Low battery alarm
  - a. Idle : 3.45 V ~ 3.35 V
  - b. Dedicated : 3.45 V ~ 3.35 V
10. Low battery alarm interval
  - a. Idle : 3 min
  - b. Dedicated : 1 min
11. Switch-off voltage : 3.35 V
12. Charging temperature adc range
  - a. ~ -5 : low charging voltage operation (3.6 V ~ 3.9 V)
  - b. -5 ~ 50 : standard charging (up to 4.2 V)
  - c. 50 ~ : low charging voltage operation (3.6V ~ 3.9V)

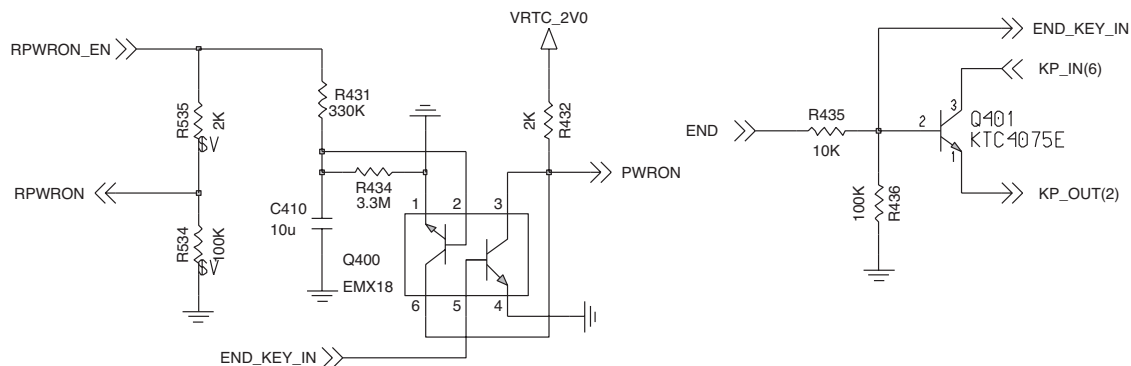
### 3. TECHNICAL BRIEF

#### 3.4 Power ON/OFF

KM380 series Power State : Defined 3cases as follow

- ▶ Power -ON : Power key detect (S-GOLDradio PWRON port)
- ▶ Power -ON-charging : Charger or USB detect.

#### Remote Power On



**Figure 8. Remote power on and End-key power on circuit**

Input ON is a power-on input for S-GOLDradio with 2 active high levels (see Figure 8). It might be triggered by a push button. To detect if the push-button is pressed during system operation the logical level at pin ON or its change (if Bit 1 EION in INTCTRL2 is asserted) is recorded in bit LON of the ISF register. If the high level of voltage at pin ON does not reach VIHdet ( $V_{bat}-0.8 \sim V_{bat}-0.3$ ) the above-mentioned bit won't be set.

To support Remote power on function for factory mass production, applied an BJT as following figure. As monitoring the RPWRON and Key matrix KP\_OUT(2) & KP\_IN(6), KM380 series system recognize whether remote power on or End-key pushed

### 3.5 SIM interface

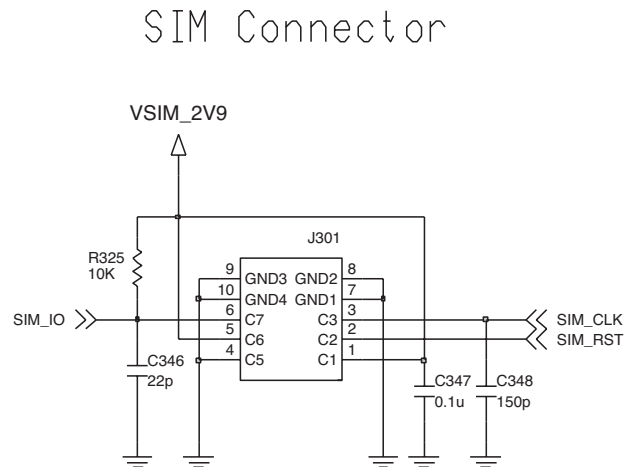
KM380 supports 1.8V & 3V plug in SIM, SIM interface scheme is shown in (Figure 10). SIM\_IO, SIM\_CLK, SIM\_RST ports are used to communicate with BBP(S-GOLDRadio) and the SIM powersupply enabled by BBP (\_SIM\_EN).

#### SIM Interface

SIM\_CLK: SIM card reference clock

SIM\_RST: SIM card Async /sync reset

SIM\_IO: SIM card bidirectional reset

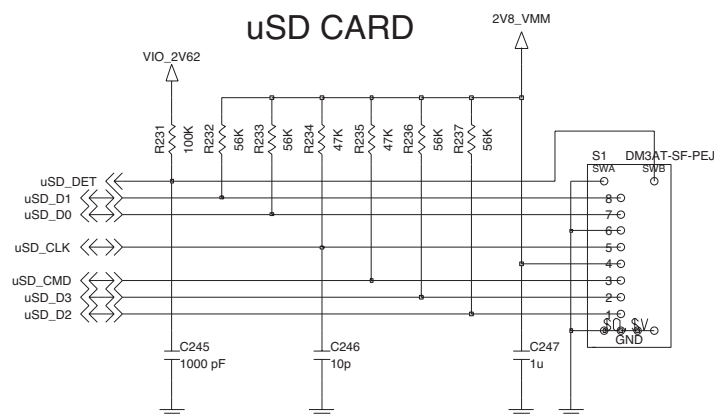


**Figure 9. SIM Circuit**

### 3. TECHNICAL BRIEF

#### 3.6 Micro SD external memory Interface

In KM380 series a Micro SD slot for external Memory is connected to MP3 Decoder TCC8720.



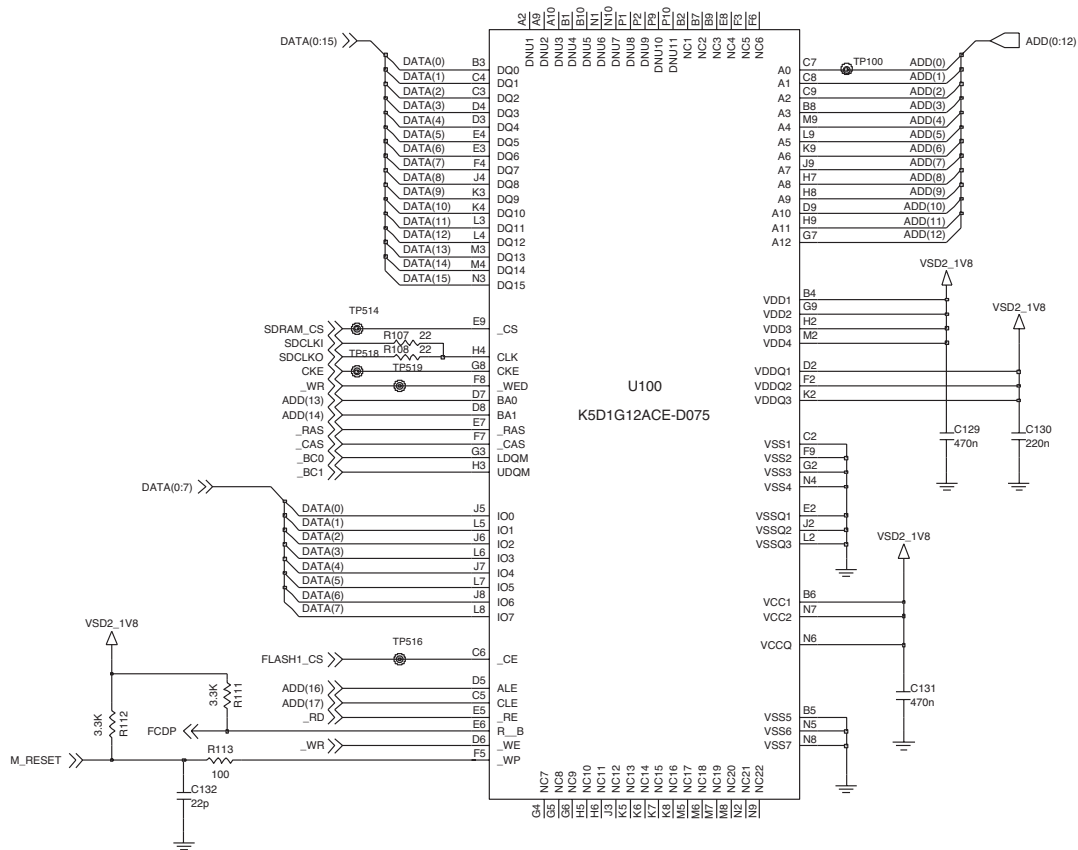
**Figure 10. Micro SD Card Circuit**

Micro SD memory pad assign.

SD mode			
Pin No.	Name	Type	Description
1	uSD_DAT2	I/O	Data bit [2]
2	uSD_DAT3	I/O	Data bit [3]
3	uSD_CMD	I/O	Command response
4	2V8_VMM	Power	Power supply
5	uSD_CLK	I	Clock
6	VSS	Ground	Power ground
7	uSD_DAT0	I/O	Data bit [0]
8	uSD_DAT1	I/O	Data bit [1]

## 3.7 Memory

1Gbit NAND Flash & 512Mbit SDRAM employed on KM380 series with 8 bit bus for NAND and 16bit bus for SDRAM thru ADD(0) ~ ADD(24). The 1Gbit NAND Flash memory with SDRAM stacked device family offers multiple high-performance solutions.



**Figure 11. Memory Circuit**



### 3. TECHNICAL BRIEF

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#### 3.8 LCD Display

LCD module include:

- Main LCD: 2.0°± 240x320 QVGA, 260K color TFT
- Backlight : 5 piece of white LED

LCD Connector Interface Spec:

Table 7. LCD Connector Interface Spec.

Pin No.	Pin Name	I/O	Description
1	GND		Ground
2	MLED_A	I	Power Supply for LCD Backlight LED
3	MLED_C1	O	Current Return for LED1
4	MLED_C2	O	Current Return for LED2
5	MLED_C3	O	Current Return for LED3
6	MLED_C4	O	Current Return for LED4
7	MLED_C5	O	Current Return for LED5
8	GND		Ground
9	LCD VSYNC	O	LCD V-Sync
10	DIF_CS		LCD Chip Select
11	DIF_RS	I	LCD Read Select
12	DIF_WR	I	LCD Write Enable
13	DIF_RD	I	LCD Read Enable
14	GND	Ground	
15	GND	Ground	
16	GND		Ground
17	GND	Ground	
18	GND	Ground	
19	GND	Ground	
20	GND	Ground	
21	GND	Ground	
22	GND	Ground	
23	GND	Ground	
24	DIF_D(0)	I	LCD Data

### 3. TECHNICAL BRIEF

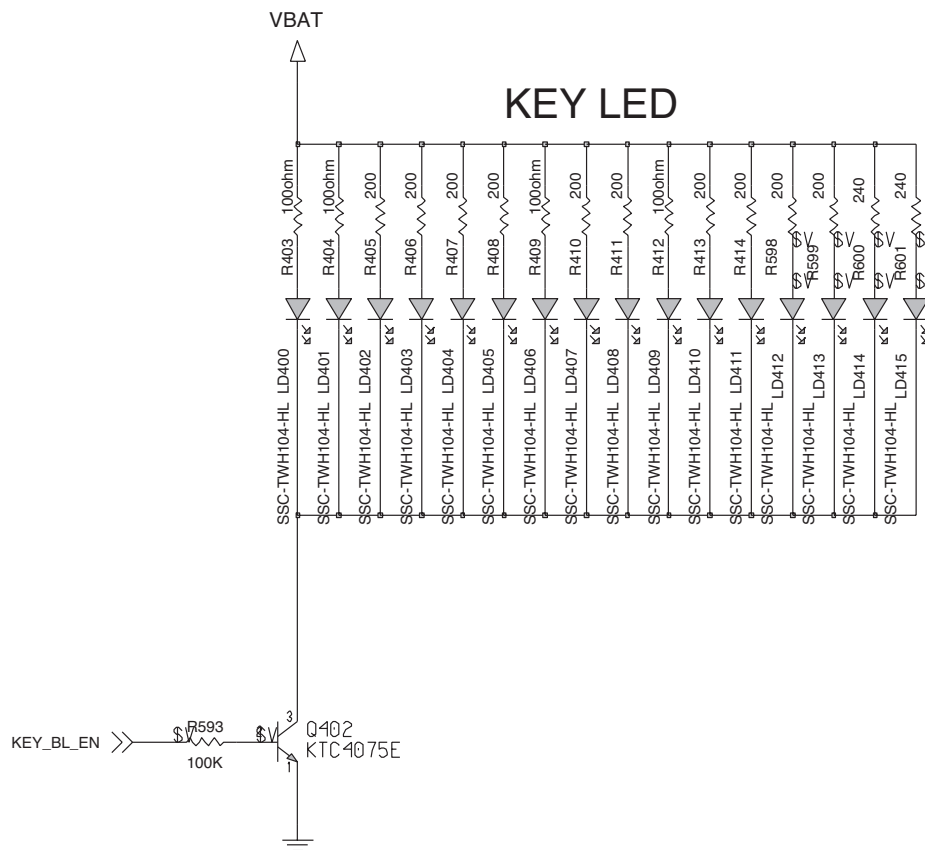
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Pin No.	Pin Name	I/O	Description
25	DIF_D(1)	I	LCD Data
26	DIF_D(2)	I	LCD Data
27	DIF_D(3)	I	LCD Data
28	DIF_D(4)	I	LCD Data
29	DIF_D(5)	I	LCD Data
30	DIF_D(6)	I	LCD Data
31	DIF_D(7)	I	LCD Data
32	LCD_RESET	I	LCD Reset
33	GND	I	Interface Mode 1
34	VIO_2V62	I	Interface Mode 2
35	LCD_ID	O	LCD Module Maker ID
36	VIO_2V62	I	LCD IO VCC
37	GND		Ground
38	VIO_2V62	I	LCD VCC
39	VIO_2V62	I	LCD VCC
40	GND	Ground	



### 3.10 Keypad back-light illumination

There are 12 snow white color LEDs on PCB for keypad illumination. Keypad Back-light is controlled by S-GOLDRadio PWM port which has a duty control function. The whole configuration of the S-GOLDRadio Flash LED circuit is shown in below Figure13.



**Figure 13. Keypad Backlight Circuit**

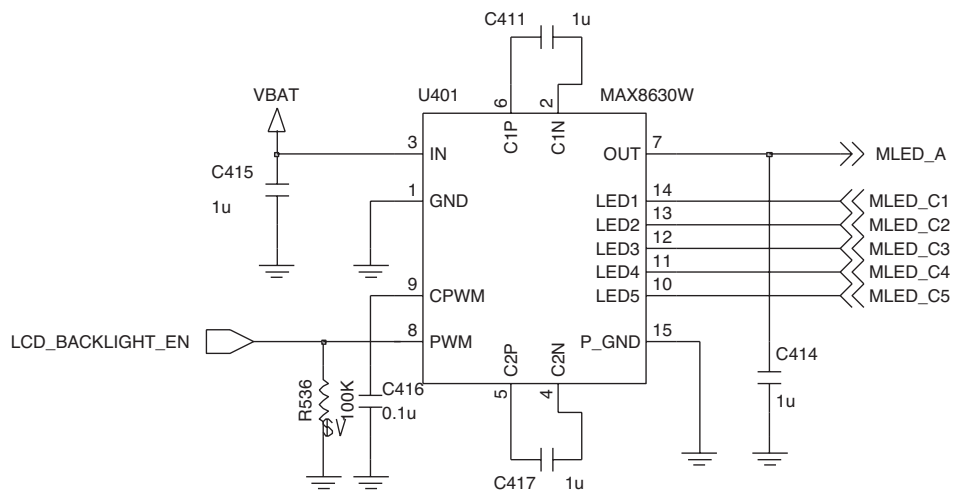
### 3. TECHNICAL BRIEF

#### 3.11 LCD back light illumination

MAX8630W is a charge pump designed to support PWM control mode. And MAX8630W supports 5 white LEDs. The MAX8630W is capable of driving up to 5 LEDs at a total of 100mA(MAX8630W 100mA).

The current sinks may be operated individually or in parallel for driving higher current LEDs. To maximize power efficiency, the charge pump operates in 1X, 1.5X, or 2X mode, where the mode of operation is automatically selected by comparing the forward voltage of each LED with the input voltage.

#### LCD BACKLIGHT LED DRIVER



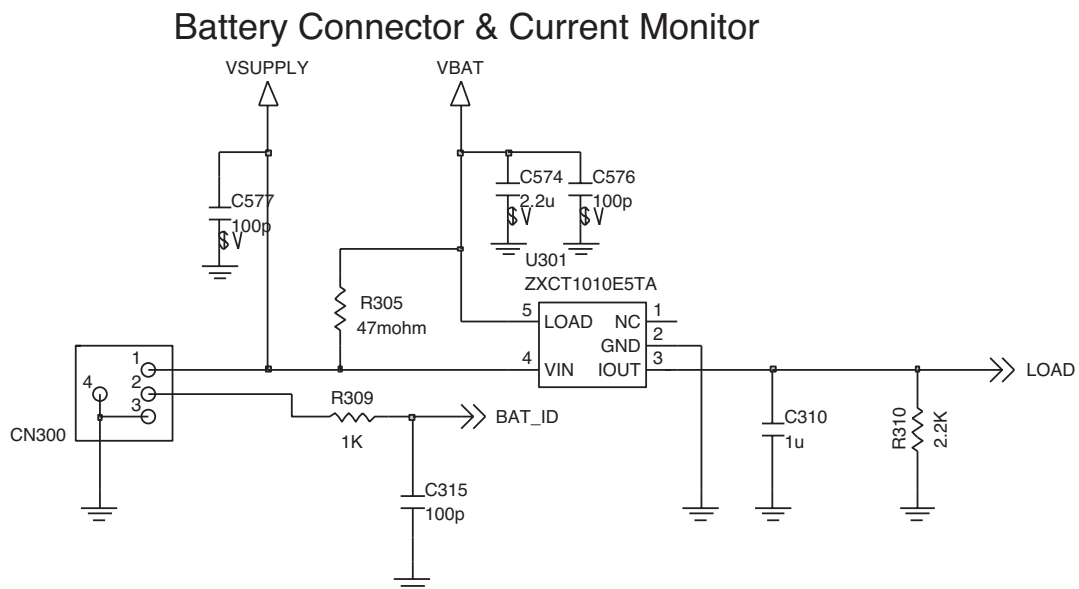
**Figure 14. Charge-Pump Circuit**

KM380 Series support Camera resolution up to 1.3M pixel. Camera Sensor I/F is integrated in the S-GOLDRadio(PMB8888).



**Figure 15. ISP & Camera Circuit**

KM380 series use a current monitoring function to calculate the battery capacity and the remaining time, as monitoring current flow from the battery thru 47mohm resistor.

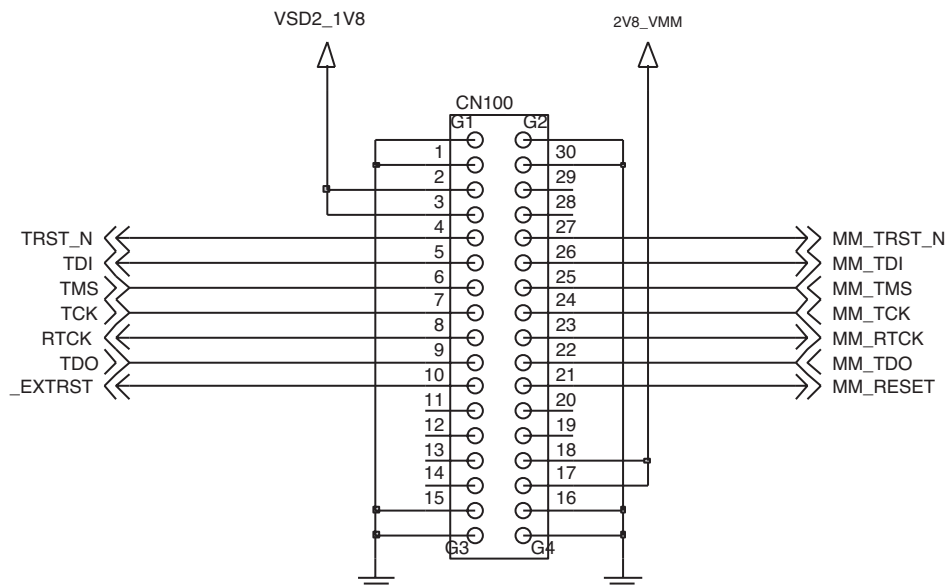


**Figure 16. Battery Current Monitor Circuit**

### 3.14 JTAG & ETM interface connector

In case of KM380 series mass production, the JTAG interface connector will not be mount on board.  
That is only for developing and software debugging purpose.

#### ON BOARD ARM9 JTAG



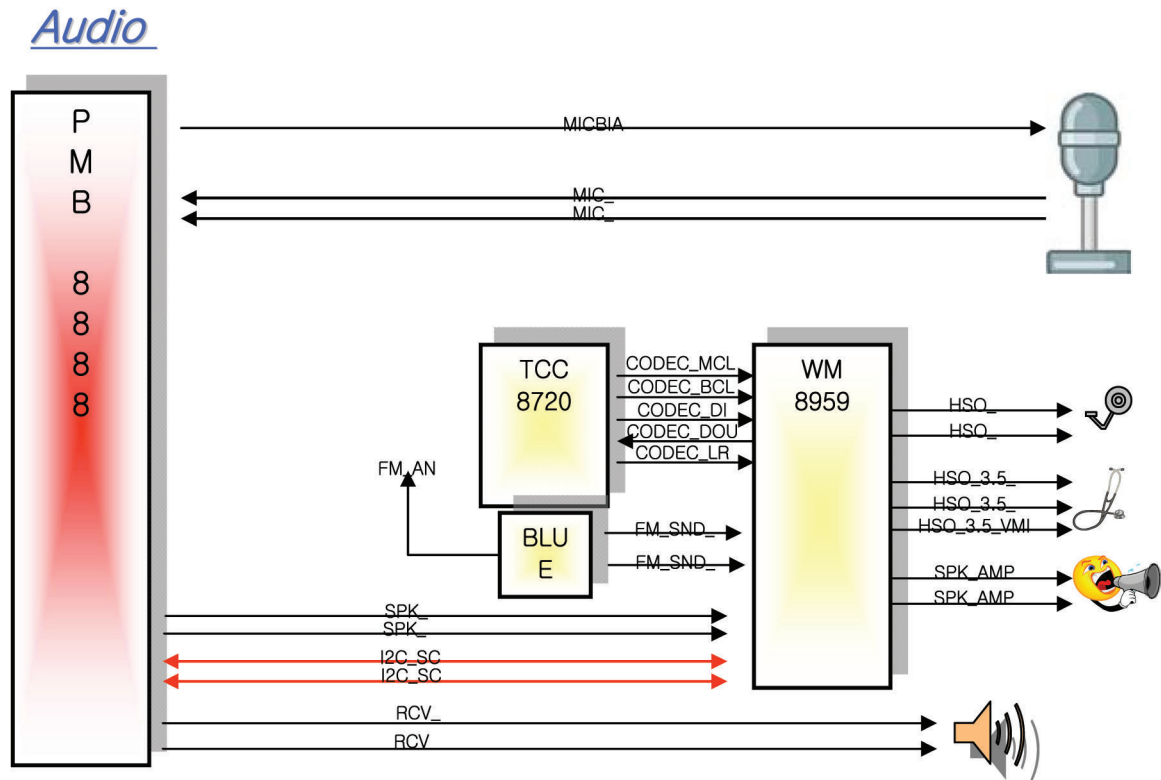
**Figure 17. JTAG & ETM Interface Circuit**



### 3. TECHNICAL BRIEF

#### 3.15 Audio

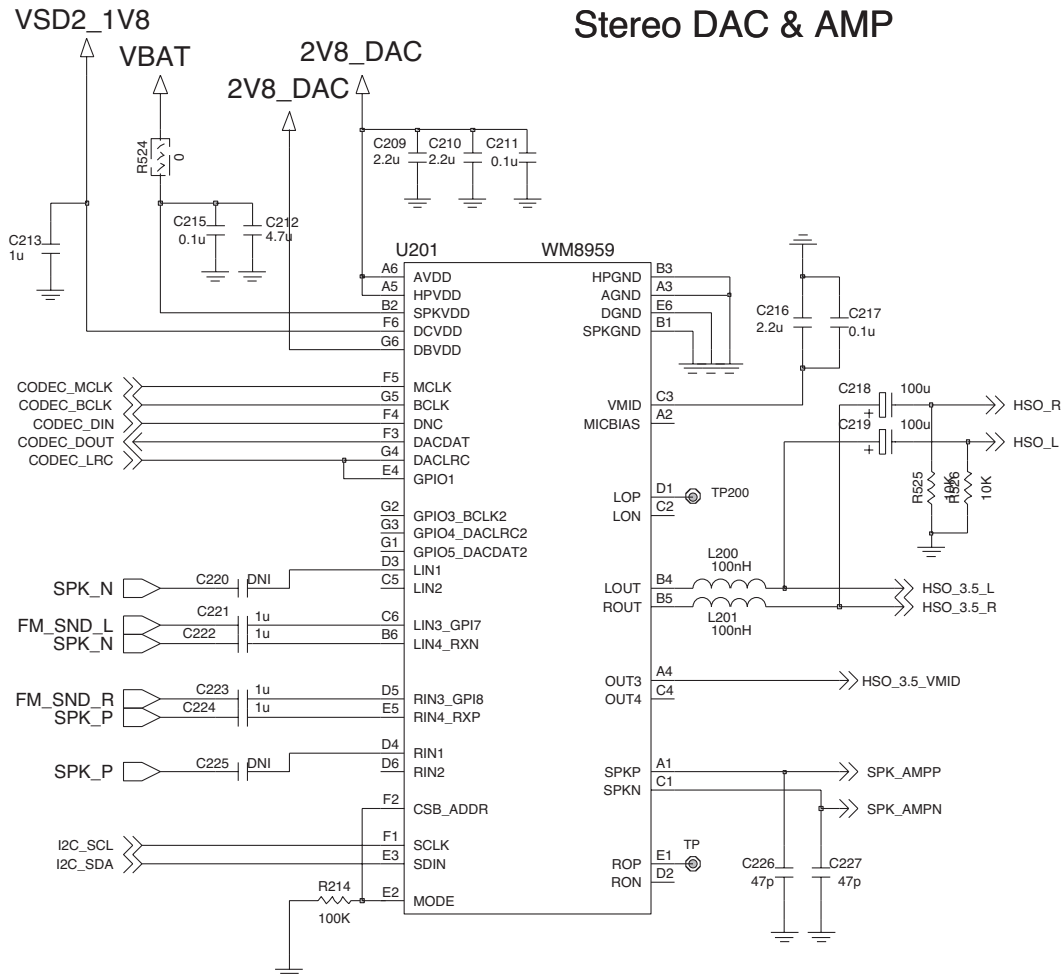
KM380 series Audio signal flow diagram as following diagram.



**Figure 18. Audio Signal Flow Diagram**

### 3.15.1 Audio amplifier

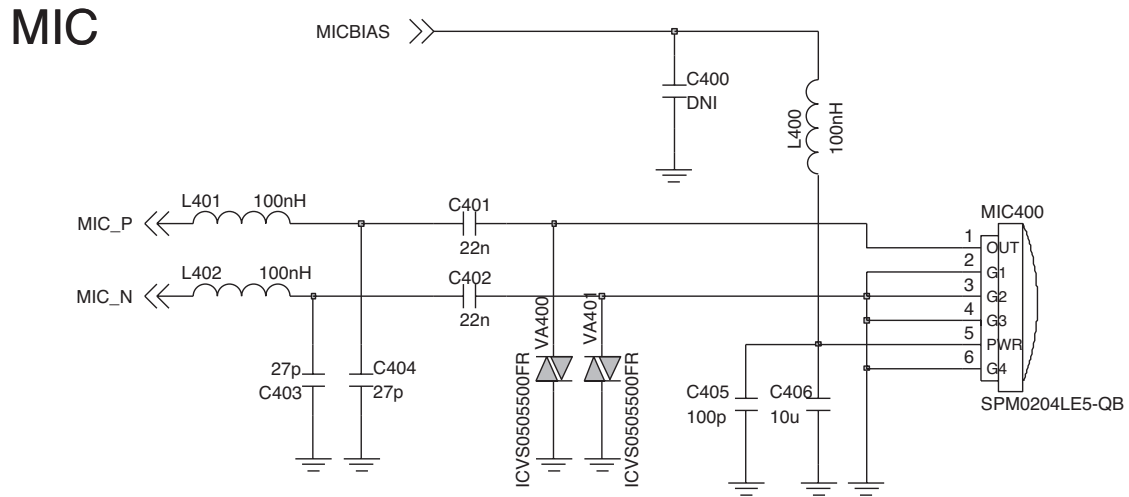
We use WM8959 Audio DAC, which have speaker & headphone amplifiers. An audio signal path can be selected by internal audio mixer of WM8959 thru I2C command.



**Figure 19. Audio DAC Circuit Diagram**

### 3. TECHNICAL BRIEF

#### 3.15.2 Microphone circuit



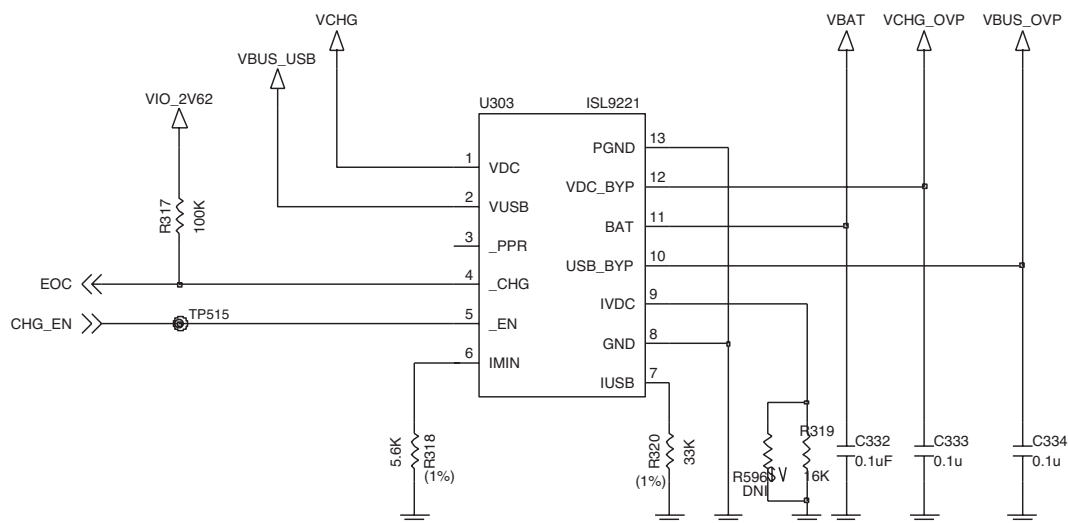
**Figure 20. Microphone Circuit Diagram**

### 3.16 Charging circuit

ISL9221 accepts two power inputs, normally one from a USB (Universal Serial Bus) port and the other from a desktop cradle.

The ISL9221 features 28V and 7V maximum voltages for the cradle and the USB inputs respectively. Due to the 28V rating for the cradle input, low-cost, large output tolerance adapters can be used safely. An over voltage protection functions are integrated in ISL9221 for USB & Charge

#### OVP CHARGING IC



**Figure 22. Charging Circuit Diagram**

With the on-chip CSR Bluetooth software stack, it provides a fully compliant Bluetooth system to v2.0+EDR of the specification for data and voice communications.



#### Bluetooth Radio

- Common TX/RX terminal simplifies external matching, eliminates external antenna switch
- No external trimming is required in production
- Bluetooth v2.0 + EDR Specification compliant

#### Bluetooth Transmitter

- +6 dBm RF Transmit power with level control from on-chip 6-bit DAC over a dynamic range > 30dB
- Class 2 and Class 3 support without the need for an external power amplifier or TX/RX switch.

#### Bluetooth Receiver

- Integrated channel filters
- Digital demodulator for improved sensitivity and co-channel rejection
- Real time digitized RSSI available on HCI interface
- Fast AGC for enhanced dynamic range
- Channel classification for AFH

#### Synthesiser

- Fully integrated synthesizer requires no external VCO varactor diode, resonator or loop filter
- Compatible with crystals between 7.5 and 40MHz (in multiples of 250KHz) or an external clock

#### Audio

- Single-ended stereo analogue output
- 16-bit 48 kHz digital audio bit stream output

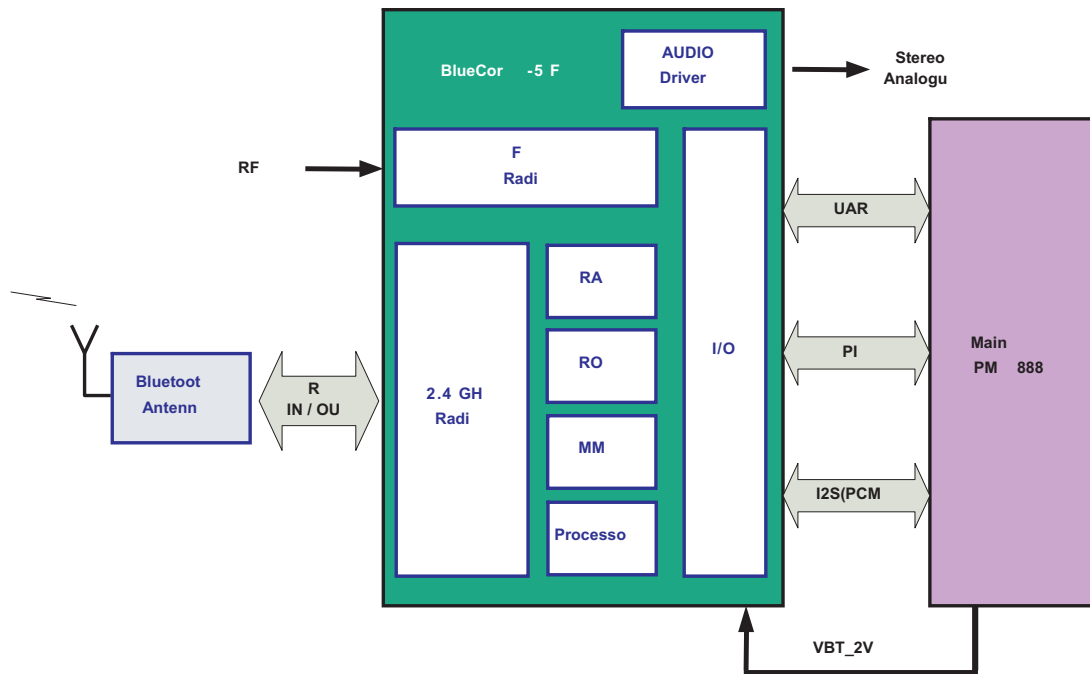
#### Baseband and Software

- Internal 48Kbyte RAM, allows full speed data transfer, mixed voice and data, and full piconet operation, including all medium rate packet types
- Logic for forward error correction, header error control, access code correlation. CRC, demodulation, encryption bit stream generation, whitening and transmit pulse shaping. Supports all Bluetooth v 2.0 + EDR features incl. ESCO and AFH
- Transcoders for A-law, u-law and linear voice from host and A-law, u-law and CVSD voice over air

#### Physical Interfaces

- Synchronous serial interface up to 4Mbps/s for system debugging
- UART interface with programmable baud rate up to 4Mbps/s with an optional bypass mode
- USB v1.1 interface
- I2C slave for FM
- Two audio PCM interfaces (input and output)
- Analogue stereo (output only)

### 3. TECHNICAL BRIEF



**Figure 23. Bluetooth / FM Radio Block Diagram**

#### 3.18 FM Radio

- Simultaneous operation with Bluetooth
- Support of US/Europe (87.5 to 108 MHz) and Japanese (76 to 90 MHz) FM band
- Wide dynamic range AGC
- Soft mute and stereo blend
- Adjustment-free stereo decoder and AFC
- Autonomous search tuning function (up/down) with programmability (threshold setting)
- RDS demodulator
- Audio output available over Bluetooth audio interface or dedicated audio output
- Control of FM via Bluetooth HCI or I2C
- Adaptive filter to suppress narrow band interference in the FM channel

### 3.19 18pin Multi Media Interface connector

Table 11. Multi media interface pin assign

KM380 series MMI		
	Pin Function	Description
1	FM_ANT	FM radio antenna / Audio ground
2	HS_MIC	Headset microphone signal
3	JACK_TYPE	Not used
4	HS_OUT_L	Headset left sound
5	HS_OUT_R	Headset Right sound
6	USB_DP	USB_DP
7	UDB_DM	USB_DM
8	JACK_DETECT	Headset detect (active low)
9	VBAT	Battery voltage
10	VBAT	Battery voltage
11	RPWRON_EN	Remote power on (active high. 2.8V)
12	VCHG	Charger voltage
13	VCHG	Charger voltage
14	DSR	Not used
15	VBUS_USB	USB VBUS
16	UART_Tx	UART Tx
17	UART_Rx	UART Rx
18	GND	Power GND



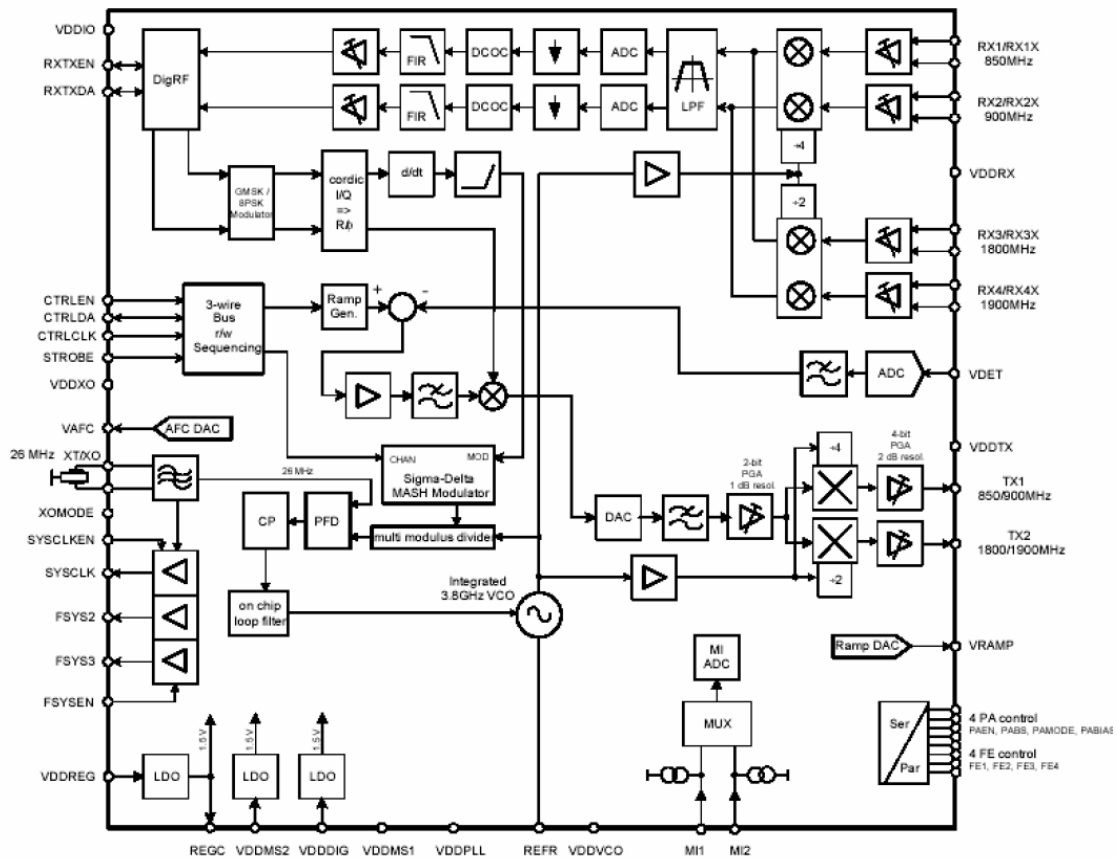
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## 4. RF circuit technical brief

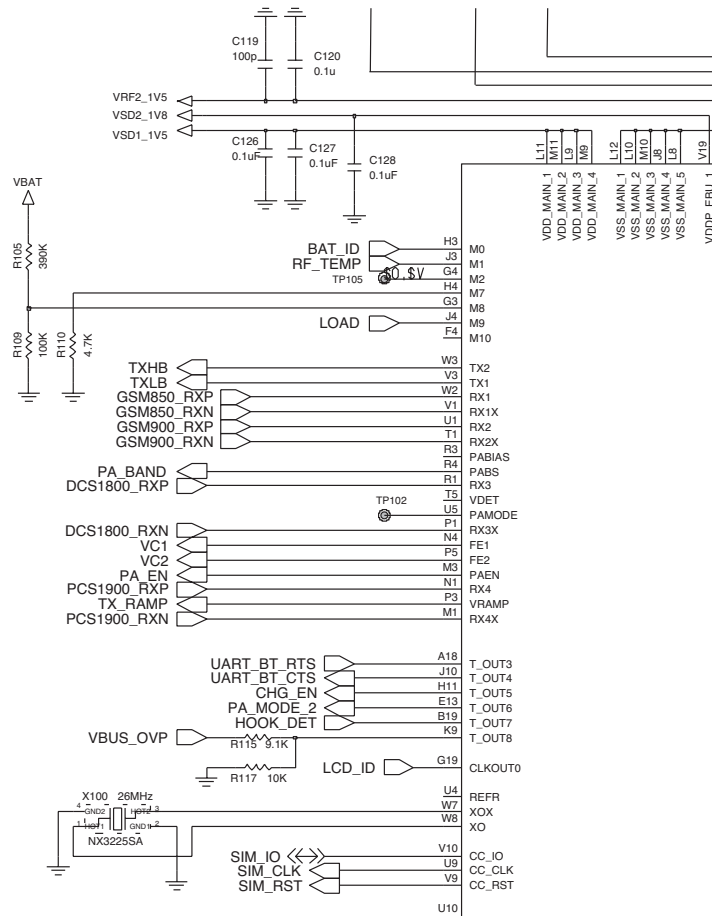
### 4.1 General Description

The RF transceiver is integrated in S-GOLDRadio(PMB8888), which supports quad-band operation for voice and data transfer applications. The whole transceiver function is integrated in main IC, PMB8888 provides 4 LNA inputs for RF receiving and two outputs for PAM input for High/Low band. A direct conversion receiver and a quad-band polar transmitter for GSM and EDGE with integrated PGA functionality.

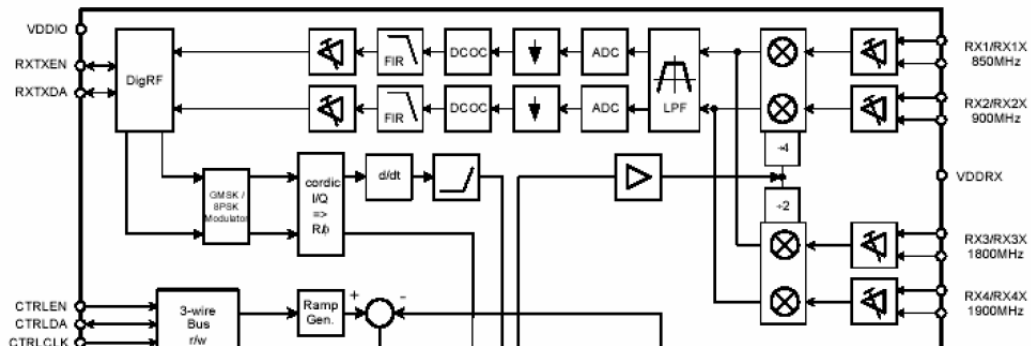


**Figure 29. PMB 6272 Function Block Diagram**

## 4. RF circuit technical brief



**Figure 30. SMARTi-PM Circuit Diagram**



### Figure 29. PMB 6272 Function Block Diagram

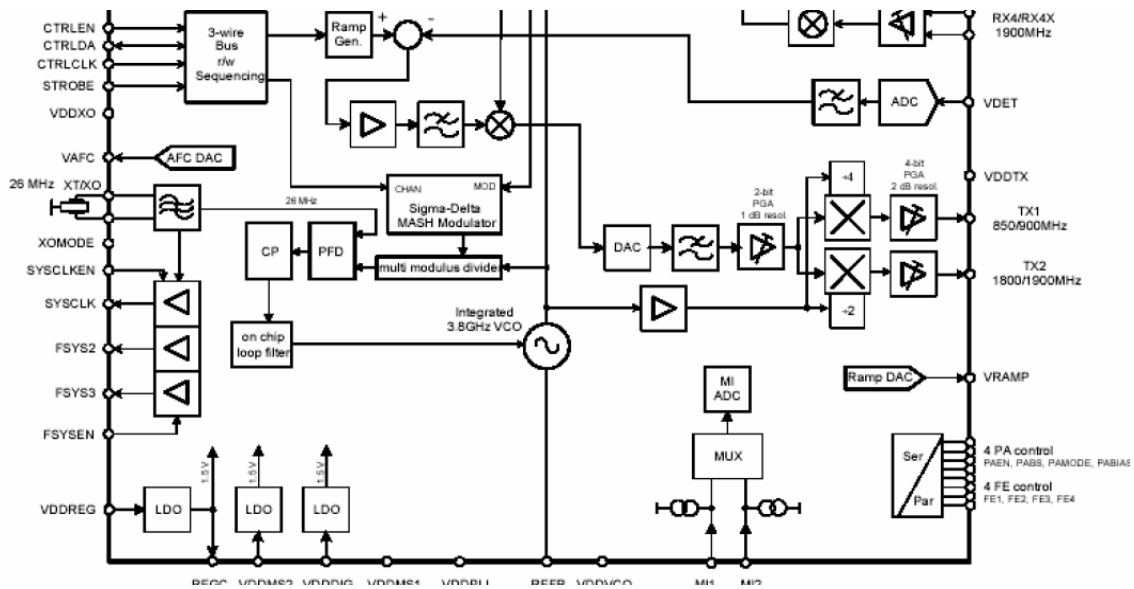
The constant gain direct conversion receiver contains all active circuits for a complete receiver chain for GSM/GPRS/EDGE (see Figure 30). The GSM850/900/DCS1800/ PCS1900 LNAs with balanced inputs are fully integrated. No inter-stage filtering is needed. The orthogonal LO signals are generated by a divider-by-four for GSM850/900 band and a divider-by-two for the DCS1800/PCS1900 band. Down conversion to baseband domain is performed by low/high band quadrature direct down conversion mixers. The baseband chain contains a LNB (low noise buffer), channel filter, output buffer and DC-offset compensation. The 3rd order low pass filter is fully integrated and provides sufficient suppression of blocking signals as well as adjacent channel interferers and avoids anti-aliasing through the baseband ADC. The receive path is fully differential to suppress on-chip interferences. Several gain steps are implemented to cope with the dynamic range of the input signals. Depending on the baseband ADC dynamic range, single- or multiple gain step switching schemes are applicable. Furthermore an automatic DC-offset compensation can be used (depending on the gain setting) to reduce the DC-offset at baseband-output. A programmable gain correction can be applied to correct for front end- and receiver gain tolerances.

## 4. RF circuit technical brief

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### 4.3 Transmitter part

The GMSK transmitter supports power class 4 for GSM850 and GSM900 as well as power class 1 for DCS1800 and PCS1900. The digital transmitter architecture is based on a very low power fractional-N Sigma-Delta synthesizer without any external components (see Figure39). The analog I/Q modulation data from the baseband is converted to digital, filtered and transformed to polar coordinates. The phase/frequency signal is further on processed by the Sigma-Delta modulation loop. The output of its associated VCO is divided by four or two, respectively, and connected via an output buffer to the appropriate single ended output pin. This configuration ensures minimum noise level. The 8PSK transmitter supports power class E2 for GSM850 and GSM900 as well as for DCS1800 and PCS1900. The digital transmitter architecture is based on a polar modulation architecture, where the analog modulation data (rectangular I/Q coordinates) is converted to digital data stream and is subsequently transformed to polar coordinates by means of a CORDIC algorithm. The resulting amplitude information is fed into a digital multiplier for power ramping and level control. The ready processed amplitude signal is applied to a DAC followed by a low pass filter which reconstructs the analog amplitude information. The phase signal from the CORDIC is applied to the Sigma-Delta fractional-N modulation loop. The divided output of its associated VCO is fed to a highly linear amplitude modulator, recombining amplitude and phase information. The output of the amplitude modulator is connected to a single ended output RF PGA for digitally setting the wanted transmit power. The PA interface of SMARTi-PM supports direct control of standard dual mode power amplifiers (PA's) which usually have a power control input VAPC and an optional bias control pin VBIAS for efficiency enhancement. In GMSK mode, the PA is in saturated high efficiency mode and is controlled via its VAPC pin directly by the baseband ramping DAC. In this way both up- / down-ramping and output power level are set. In 8PSK mode, the ramping functionality is assured by an on-chip ramping generator, whereas output power is controlled by the PGA's as described above.



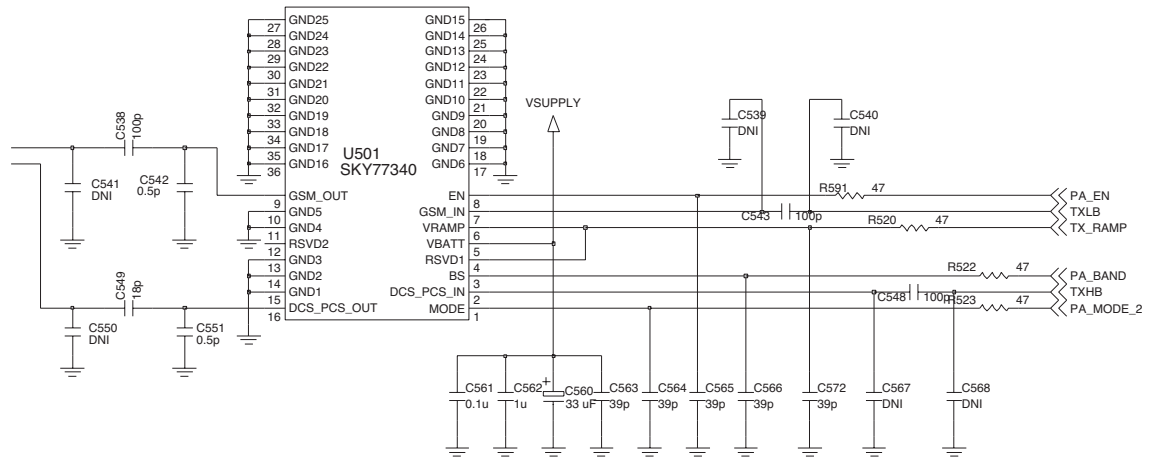
**Figure 32. Transmitter Architecture Block Diagram**

### 4.4 RF synthesizer

The transceiver contains a fractional-N sigma-delta synthesizer for the frequency synthesis in the RX operation mode. For TX operation mode the fractional-N sigma-delta synthesizer is used as Sigma-Delta modulation loop to process the phase/frequency signal. The 26MHz reference signal is provided by the internal crystal oscillator. This frequency serves as comparison frequency of the phase detector and as clock frequency for all digital circuitry. The divider in the feedback path of the synthesizer is carried out as a multi-modulus divider (MMD). The loop filter is fully integrated and the loop bandwidth is about 100 kHz to allow the transfer of the phase modulation. The loop bandwidth is automatically adjusted prior to each slot (OLGA<sup>®</sup>). To overcome the statistical spread of the loop filter element values an automatic loop filter adjustment (ALFA) is performed before each synthesizer startup. The fully integrated quad-band VCO is designed for the four GSM bands (850, 900, 1800, 1900 MHz) and operates at double or four times transmit or receive frequency. To cover the wide frequency range the VCO is automatically aligned by a binary automatic band selection (BABS) before each synthesizer startup.



### 4.7 Power Amplifier Module



**Figure 34. Power Amplifier Circuit Diagram**



## 5. PCB layout

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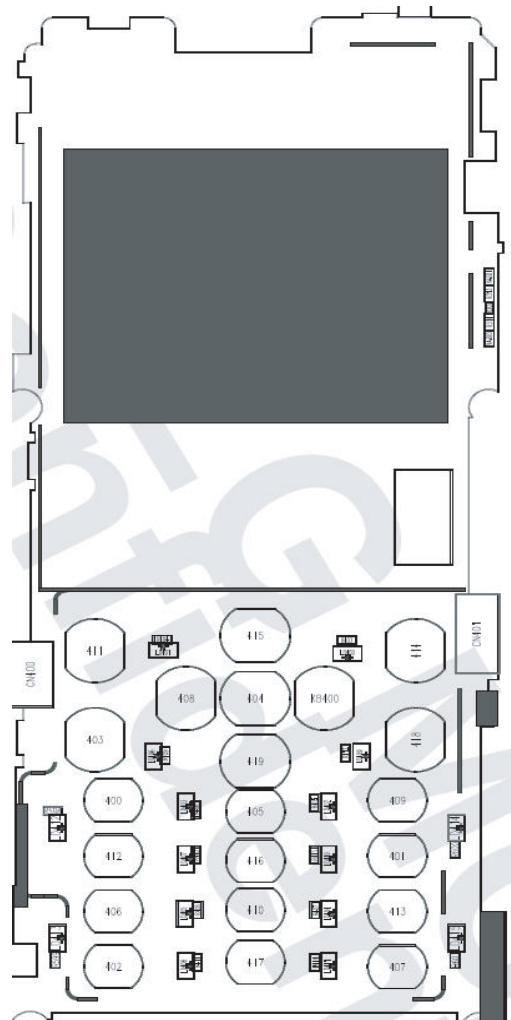
## 5. PCB layout

### 5.1 Main PCB component placement

Main PCB Top



Main PCB Top placement



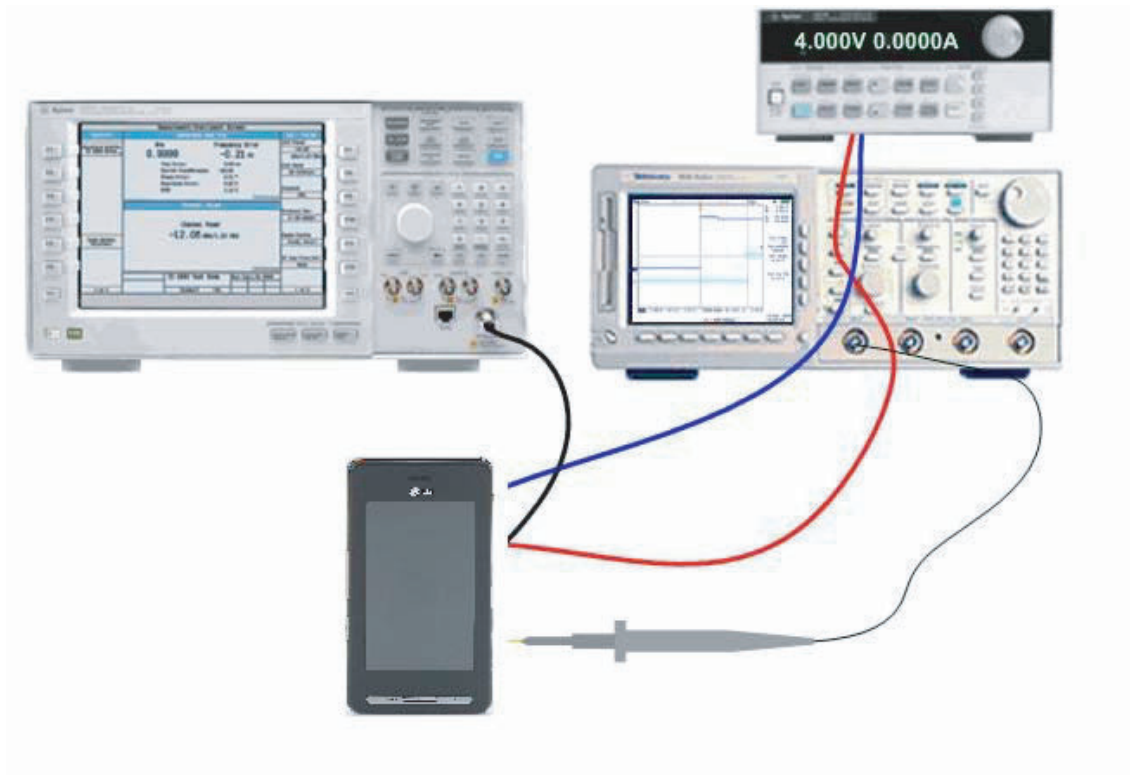


## 6. Trouble shooting

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## 6. Trouble shooting

### 6.1 Trouble shooting test setup



#### Equipment setup

Power on all of test equipment

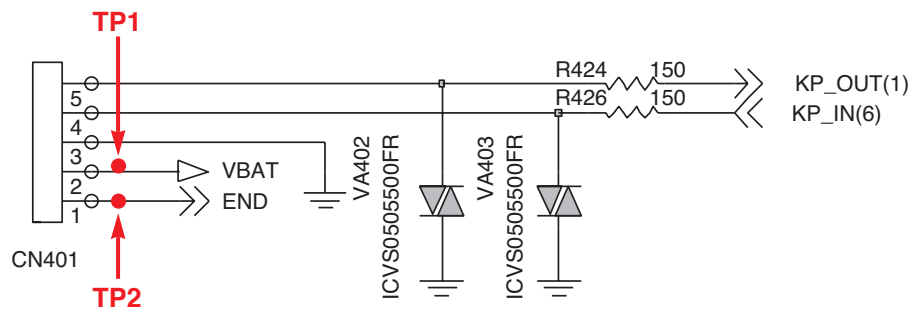
- Connect PIF-UNION JIG or dummy battery to the DUT for power up.
- Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.
- Follow trouble shooting procedure

### 6.2 Power on Trouble

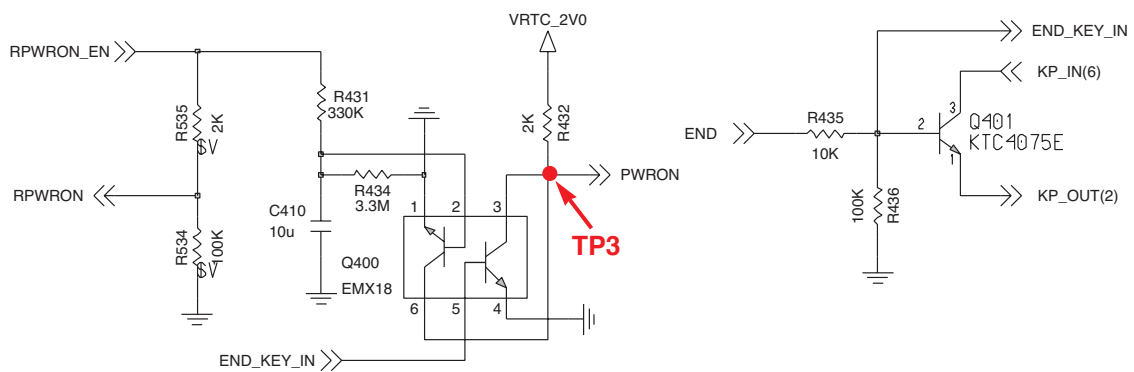
#### Check Points

- Battery Voltage( Need to over 3.35V)
- Power-On Key detection (PWRON signal)

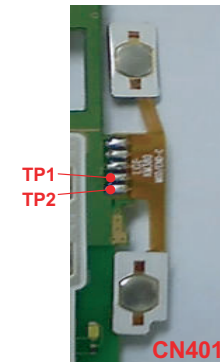
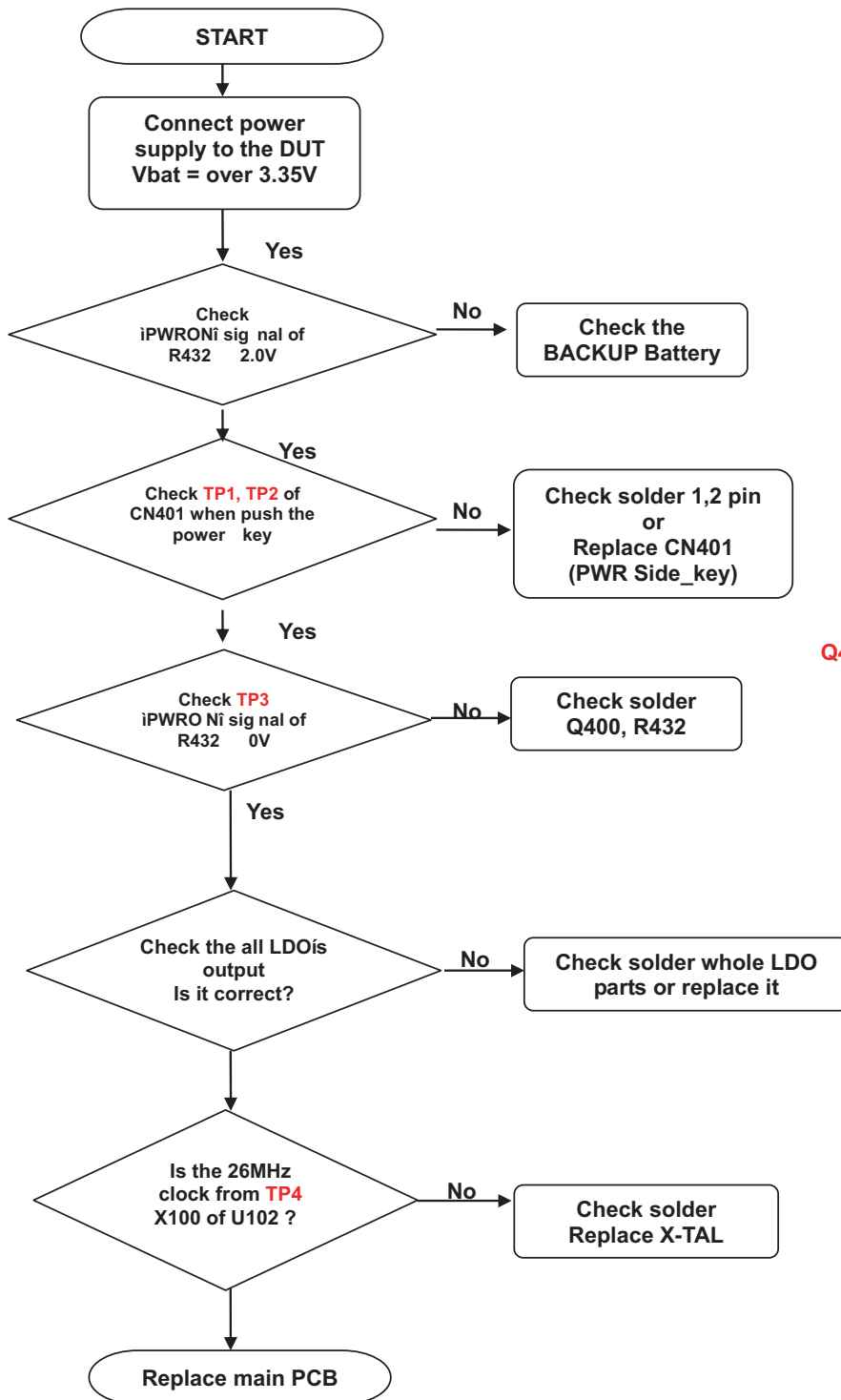
#### SIDE\_KEY\_MODE/END



#### Remote Power On



## 6. Trouble shooting

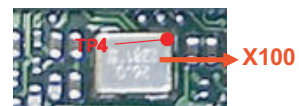


Linear Low Dropout (LDO) Regulators

- General Purpose LDOs:
  - 2.9 V, 150 mA, ultra low drop (VAUX)
  - 2.62 V, 100 mA (VIO)
  - 1.8 V / 2.9 V, 22 mA, ultra low drop (VSIM)
  - 1.8 V / 2.9 V, 150 mA, ultra low drop (VMME)
  - 2.8 V, 140 mA, ultra low drop (VVIB)
  - 3.1 V, 40 mA, ultra low drop (VUSB)
- Low Noise LDOs:
  - 2.5 V, 220 mA (VAUDIOa)
  - 2.85 V, 20 mA (VRF1)
  - 1.5 V, 80 mA (VRF2)
  - 2.85 V, 150 mA (VRF3)

Low Power LDOs

- 1.5 V, 20 mA (VPLL)
- 2.0 V, 4 mA (VRTC)



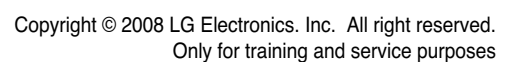
### Linear Low Dropout (LDO) Regulators

- General Purpose LDOs:
  - 2.9 V, 150 mA, ultra low drop (**VAUX**)
  - 2.62 V, 100 mA (**VIO**)
  - 1.8 V / 2.9 V, 22 mA, ultra low drop (**VSIM**)
  - 1.8 V / 2.9 V, 150 mA, ultra low drop (**VMME**)
  - 2.8 V, 140 mA, ultra low drop (**VVIB**)
  - 3.1 V, 40 mA, ultra low drop (**VUSB**)
- Low Noise LDOs:
  - 2.5 V, 220 mA (**VAUDIOa**)
  - 2.85 V, 20 mA (**VRF1**)
  - 1.5 V, 80 mA (**VRF2**)
  - 2.85 V, 150 mA (**VRF3**)

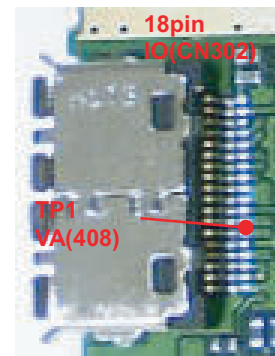
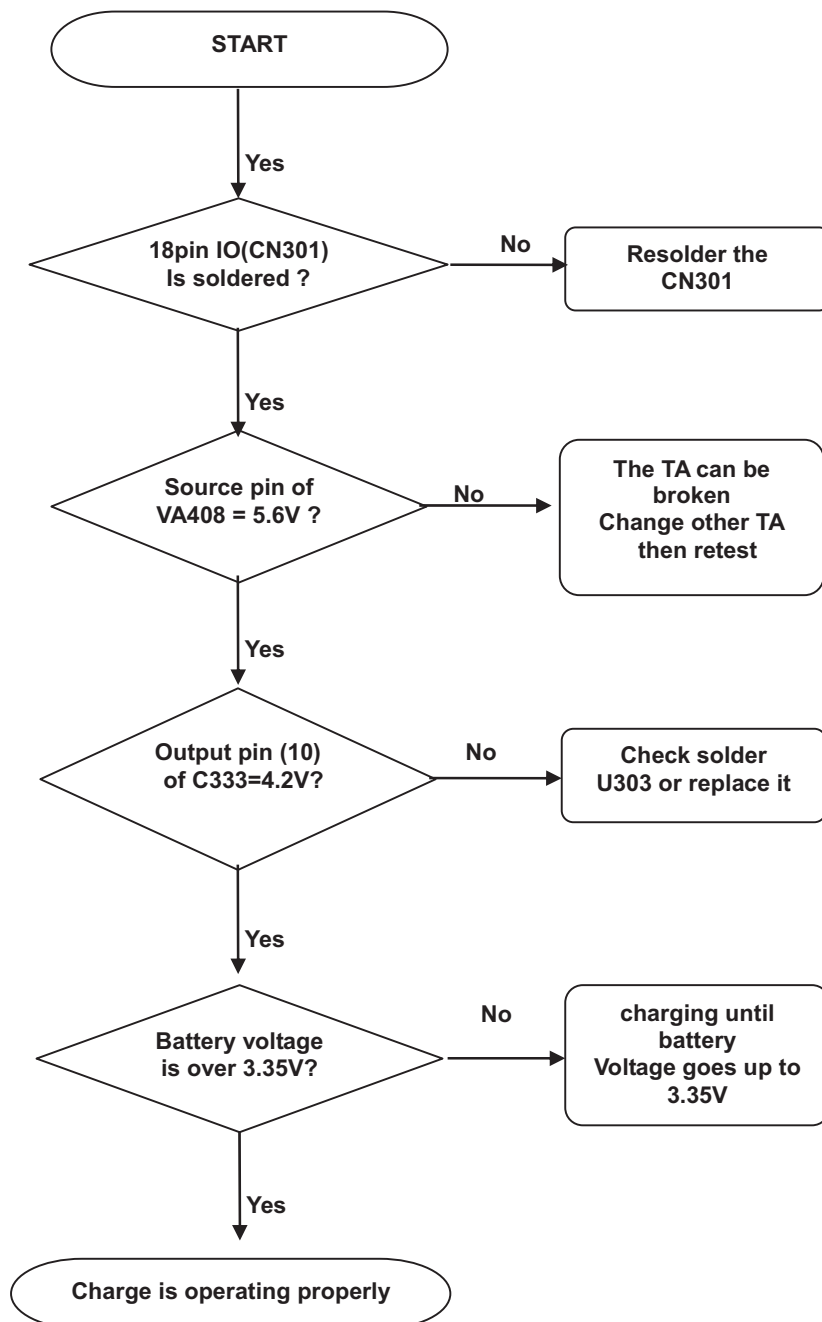
### Low Power LDOs

- 1.5 V, 20 mA (**VPLL**)
- 2.0 V, 4 mA (**VRTC**).

- 1 Charging method : CC-CV
- 2 Charger detect voltage : 4.0 V
- 3 Charging time : 2h 30m
- 4 Charging current : 400 mA
- 5 CV voltage : 4.2 V
- 6 Cutoff current : 100 mA
- 7 Full charge indication current (icon stop current) : 100 mA
- 8 Recharge voltage : 4.15 V



## 6. Trouble shooting



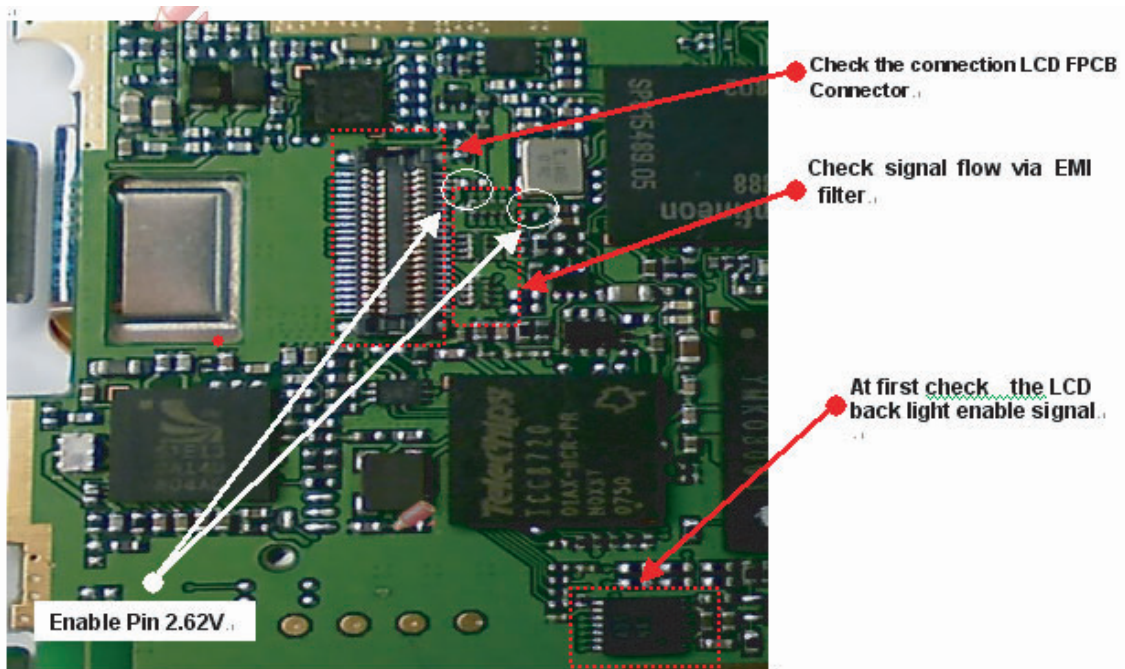
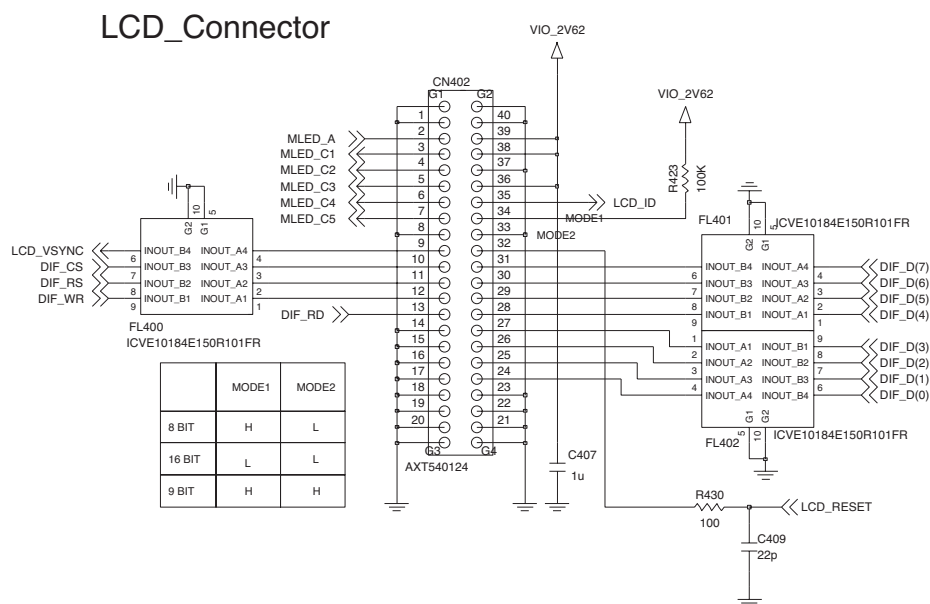


## 6. Trouble shooting

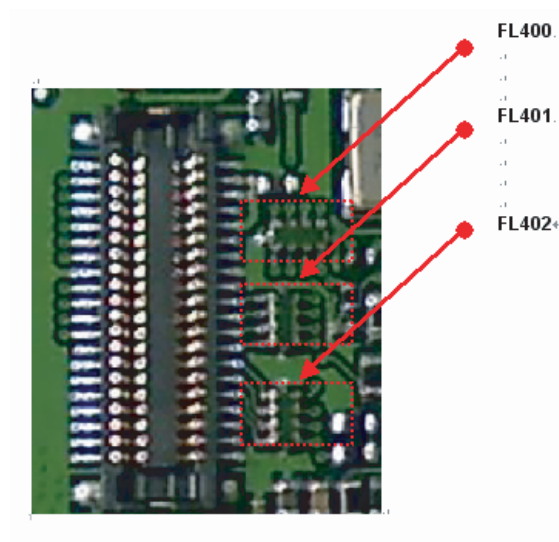
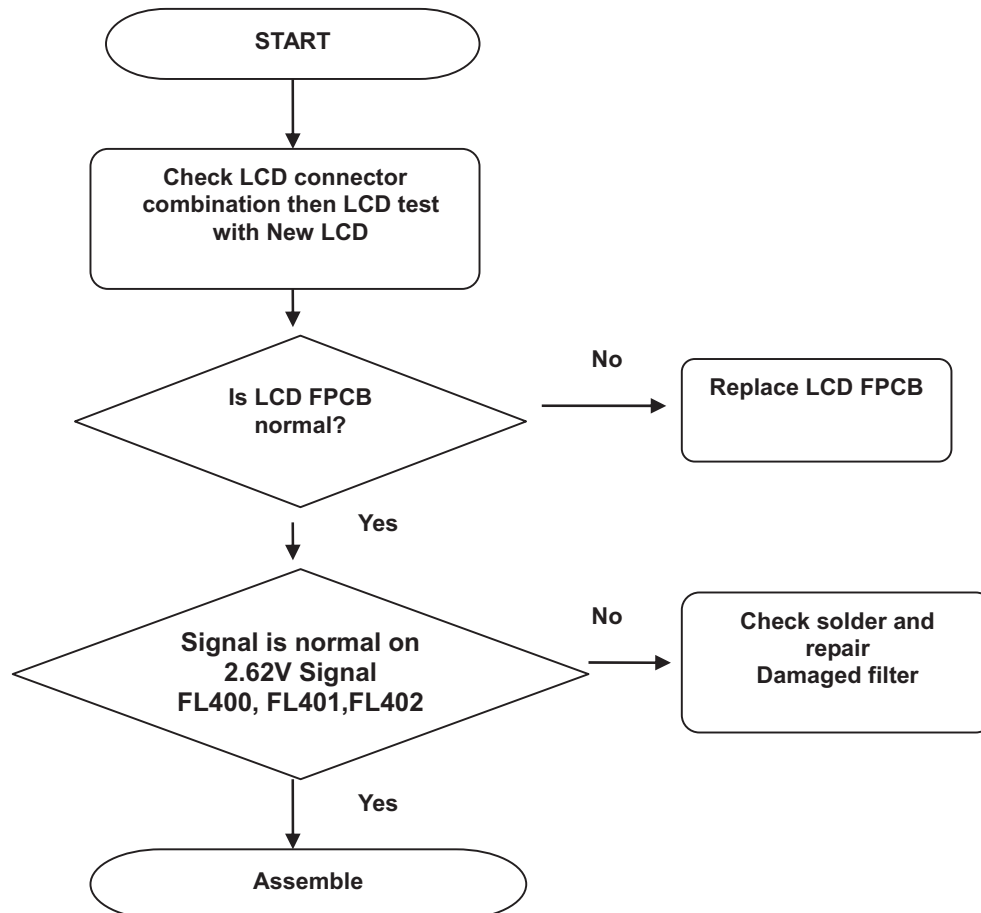
### 6.4 LCD display trouble

#### Check Points

- LCD assembly status ( LCD FPCB, Connector on FPCB)
- EMI filter soldering
- Connector combination



## 6. Trouble shooting

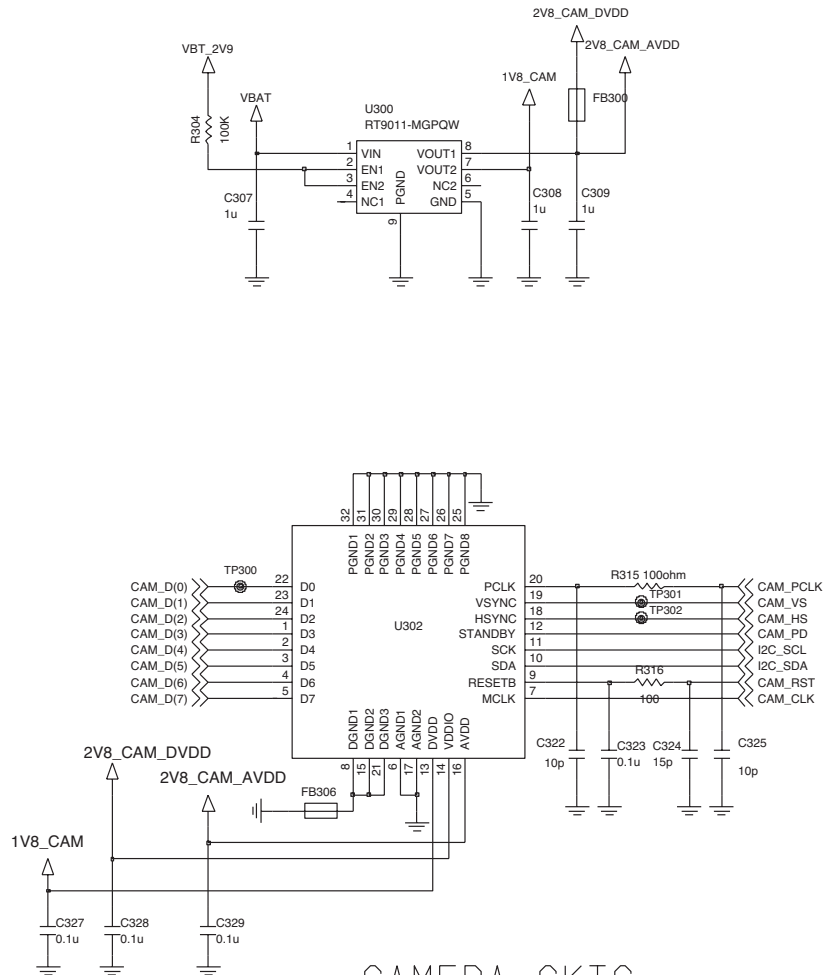


## 6. Trouble shooting

### 6.5 Camera Trouble

#### Check Points

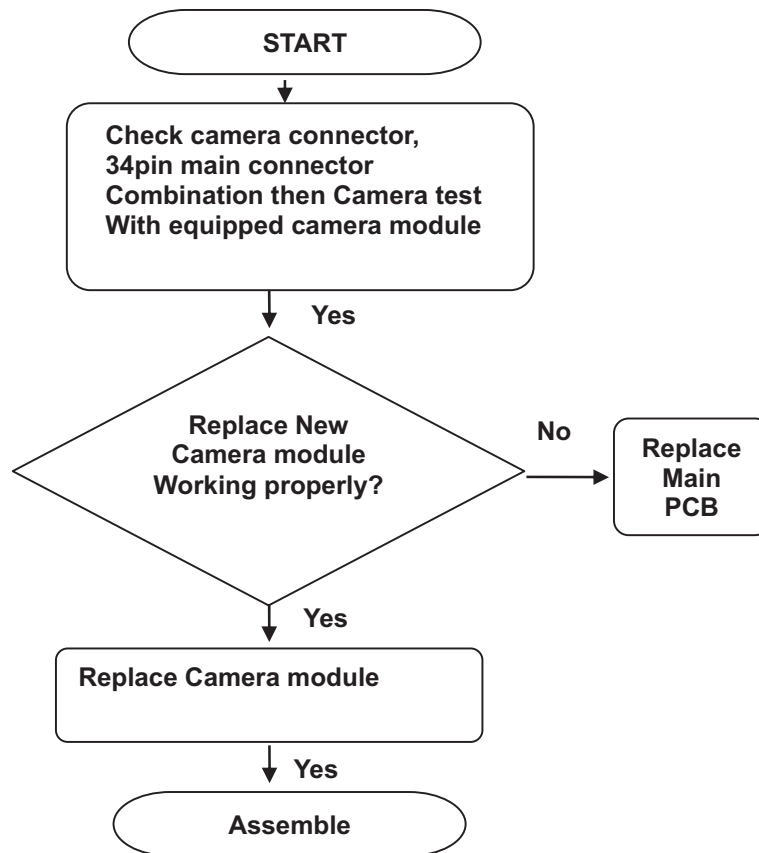
- Connectors combination
- FPCB status



CAMERA CKTS



Check the connector combination

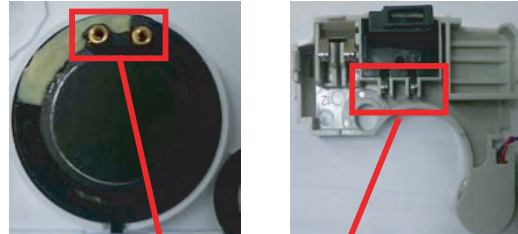


## 6. Trouble shooting

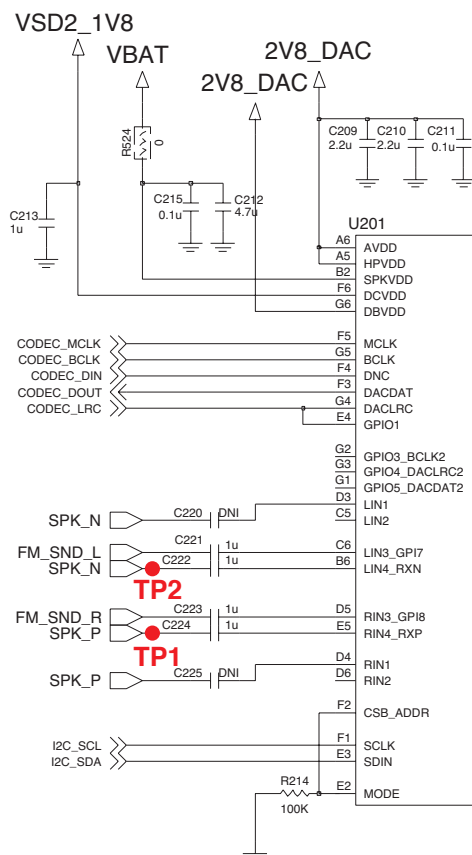
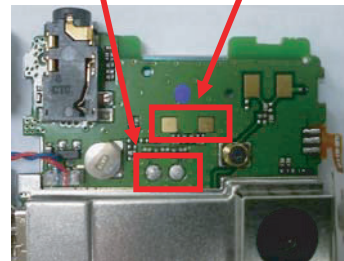
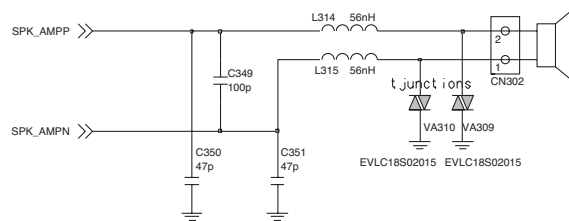
### 6.6 Receiver & Speaker trouble

#### Check Points

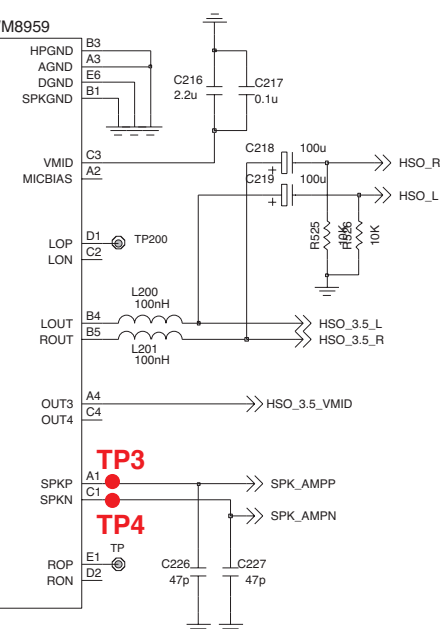
- Speaker pin contact
- Audio amp soldering
- SUB PMIC soldering



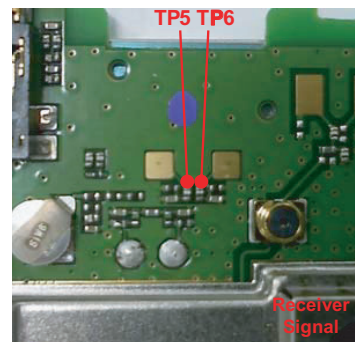
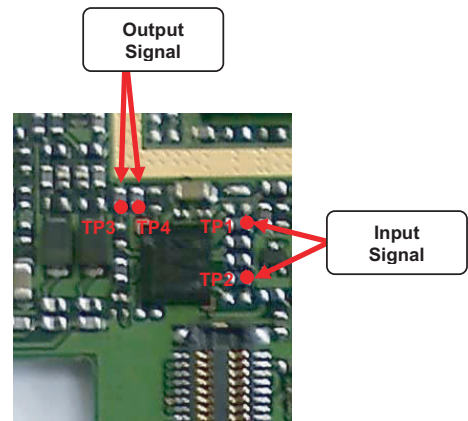
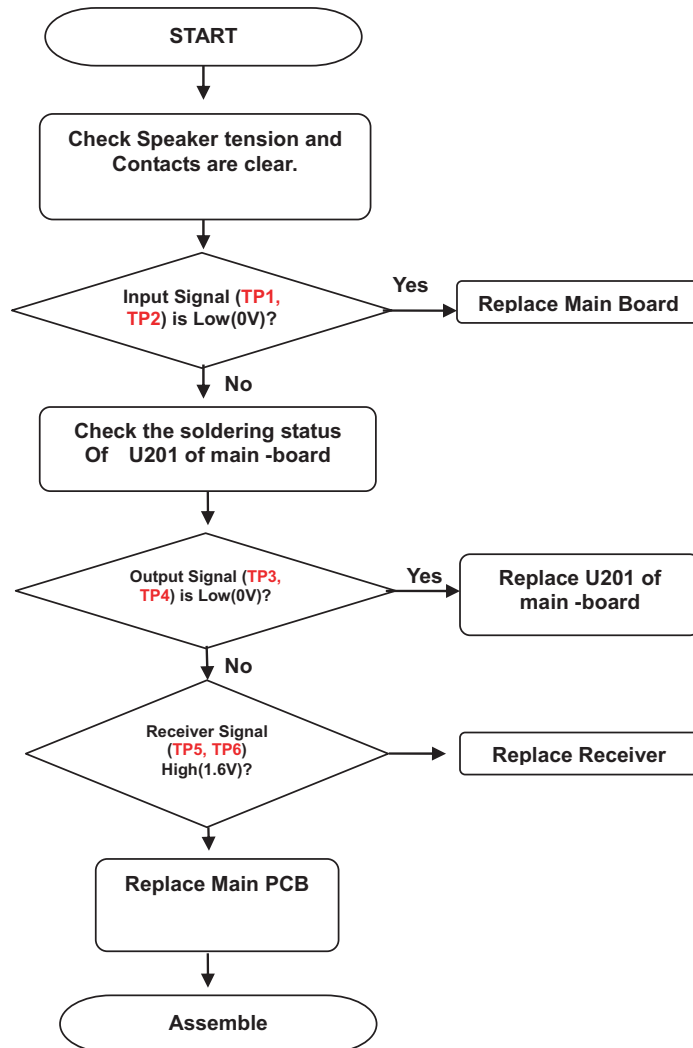
#### SPK



#### Stereo DAC & AMP



## 6. Trouble shooting

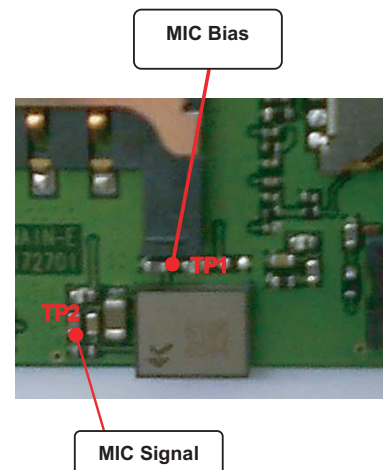
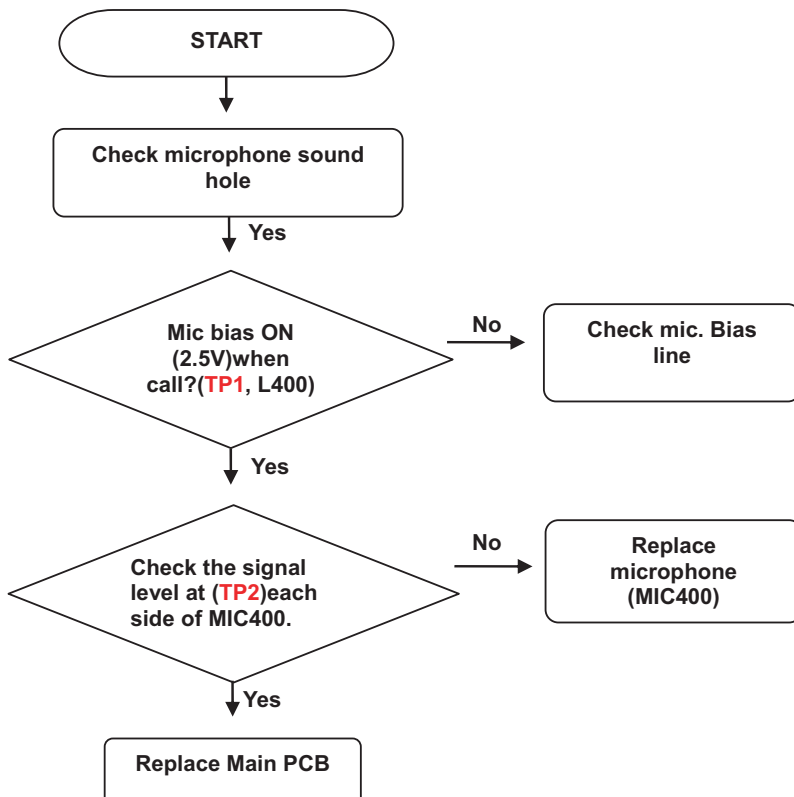
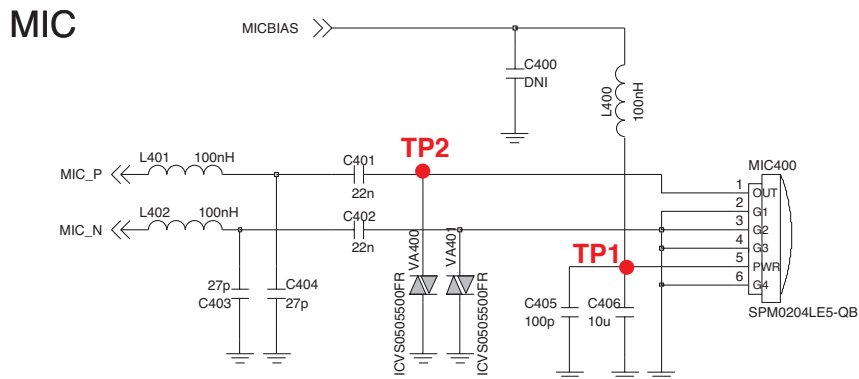


## 6. Trouble shooting

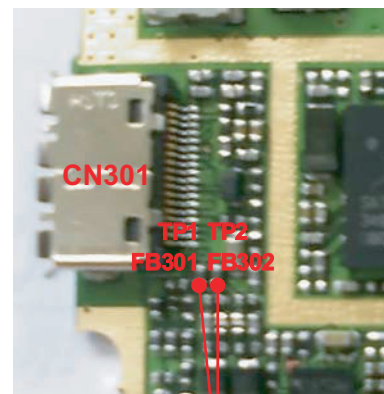
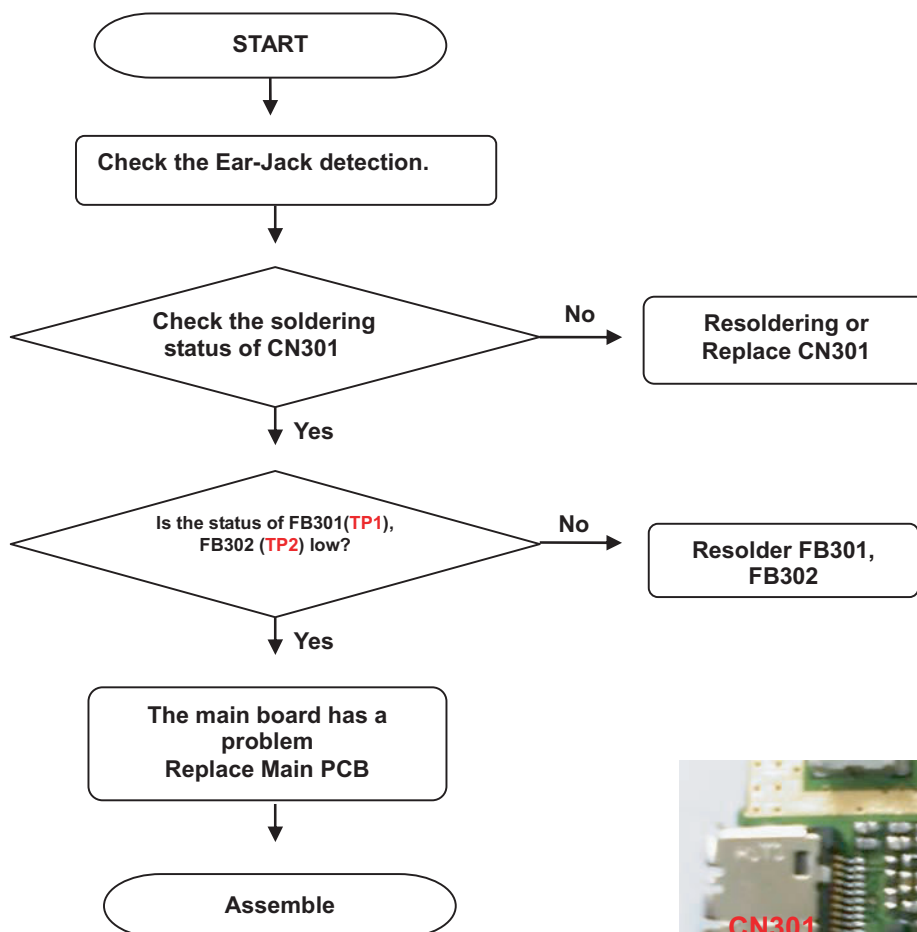
### 6.7 Microphone trouble

#### Check Points

- Microphone hole
- MICBIAS & Signal come from
- Audio signal level of the Microphone
- Soldering of components



### 6.8 Ear-Mlc Jack Detection trouble



Ear-Jack  
Signal



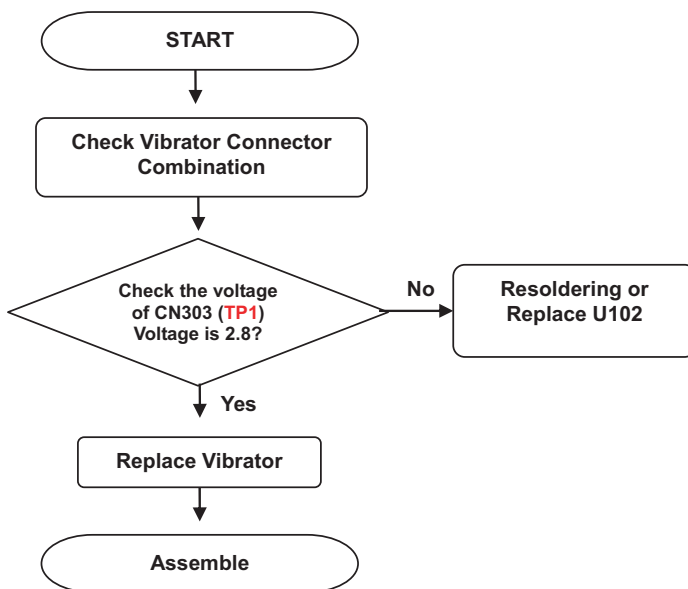
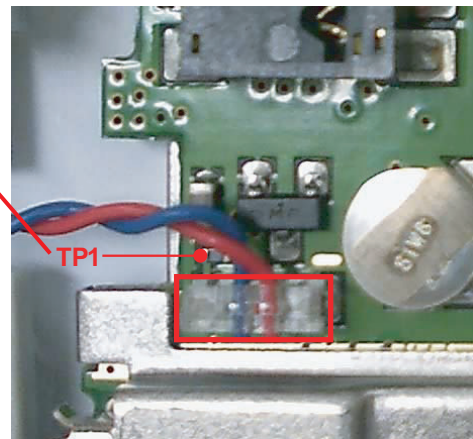
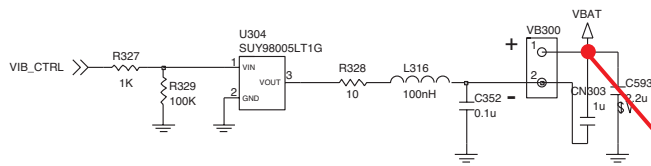
## 6. Trouble shooting

### 6.9 Vibrator trouble

#### Check Points

-Connectors combination

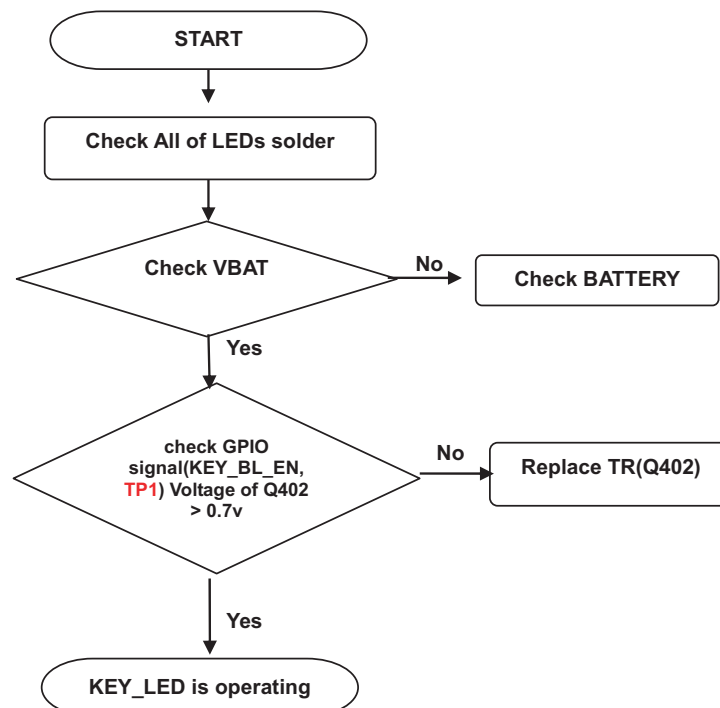
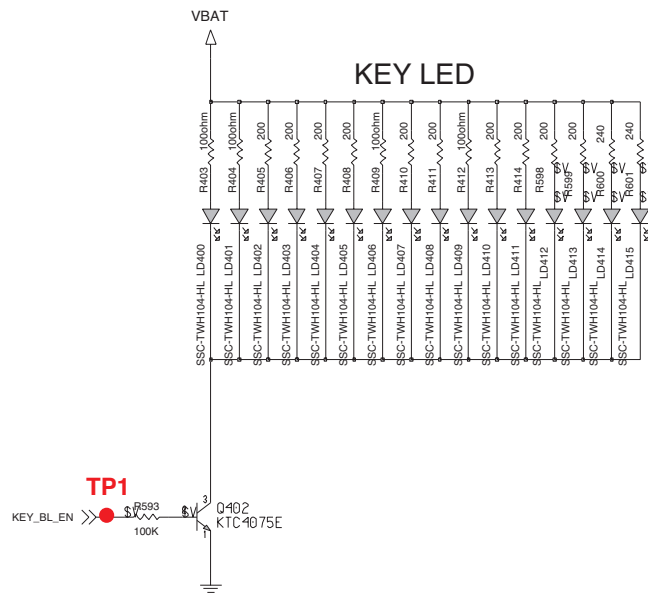
#### VIBRATOR



### 6.10 Keypad back light trouble

#### Check Points

- Signal path is connected well
- Analog SW is working properly



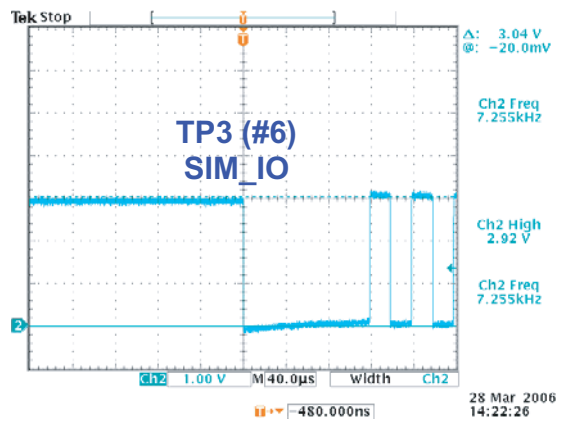
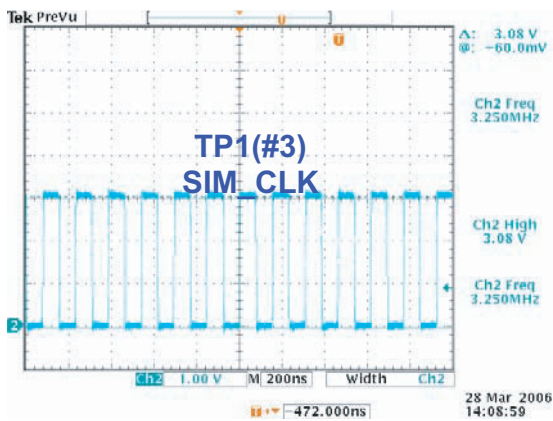
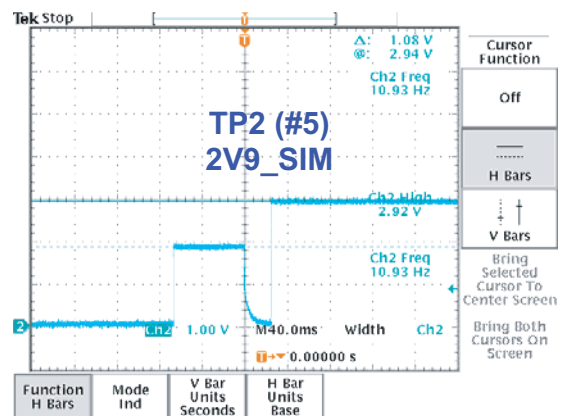
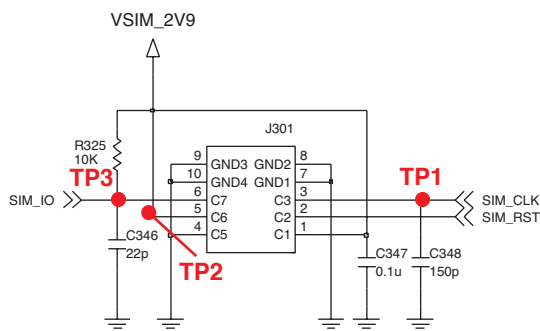
## 6. Trouble shooting

### 6.11 SIM & uSD trouble

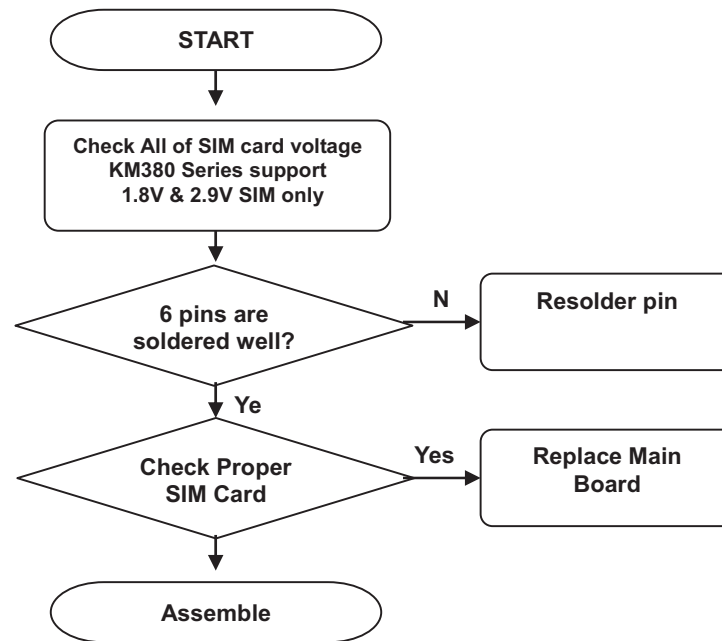
#### SIM Check Points

- Power is working
- Socket soldering
- Proper SIM is used

#### SIM Connector

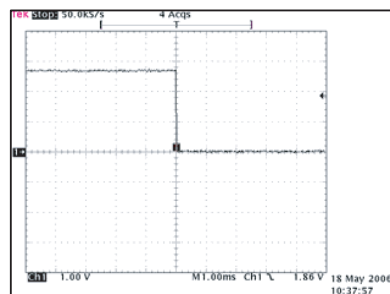
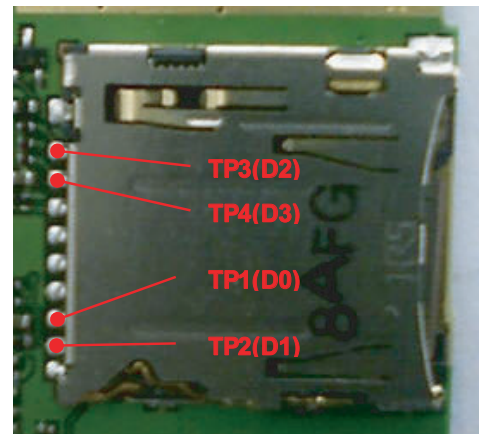
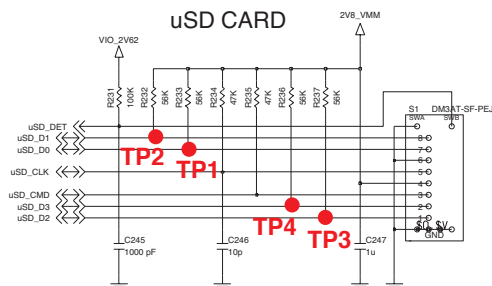


## 6. Trouble shooting

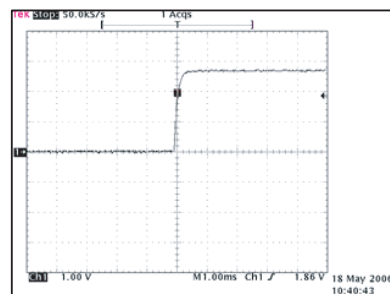


### uSD Check Points

- Power is working
- Socket soldering
- Card detect is working



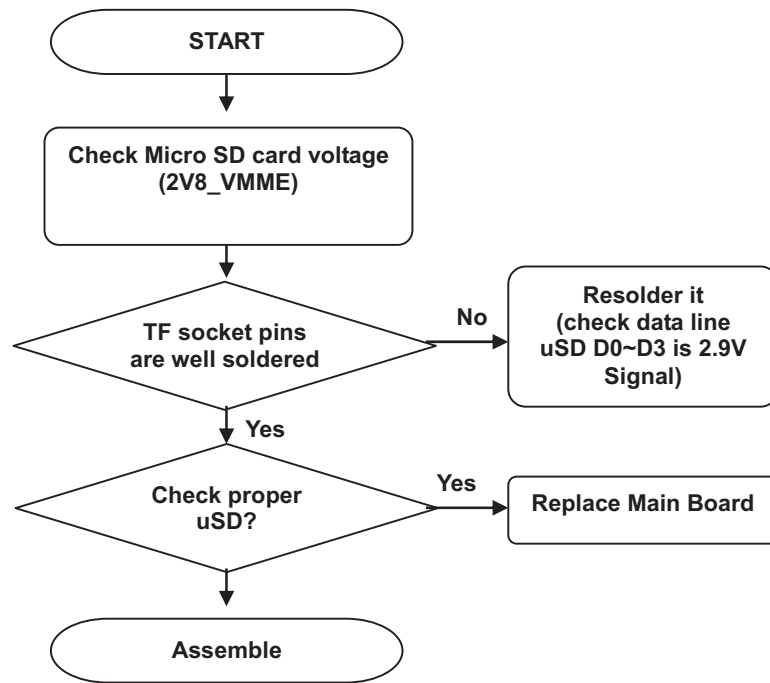
Card insert



Card eject

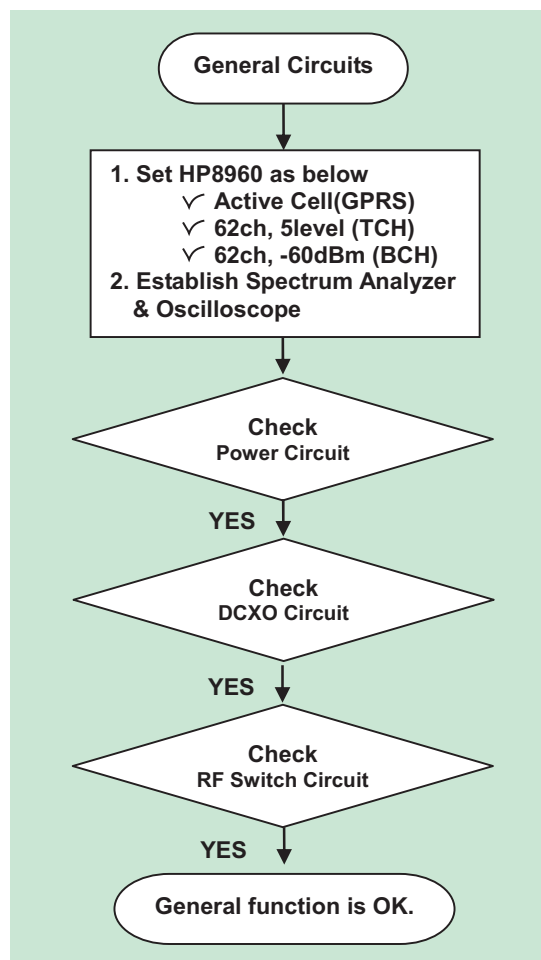
## 6. Trouble shooting

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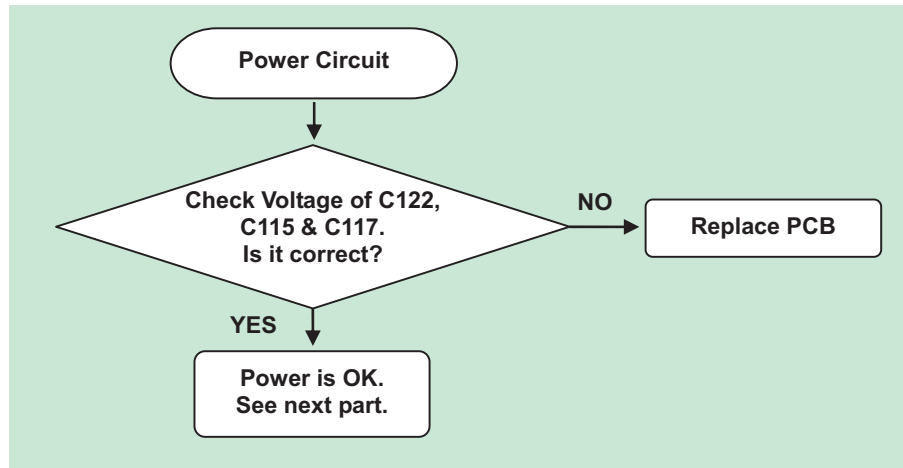
### 6.12 RF Troubleshooting

#### 6.12.1 General Circuits Troubleshooting

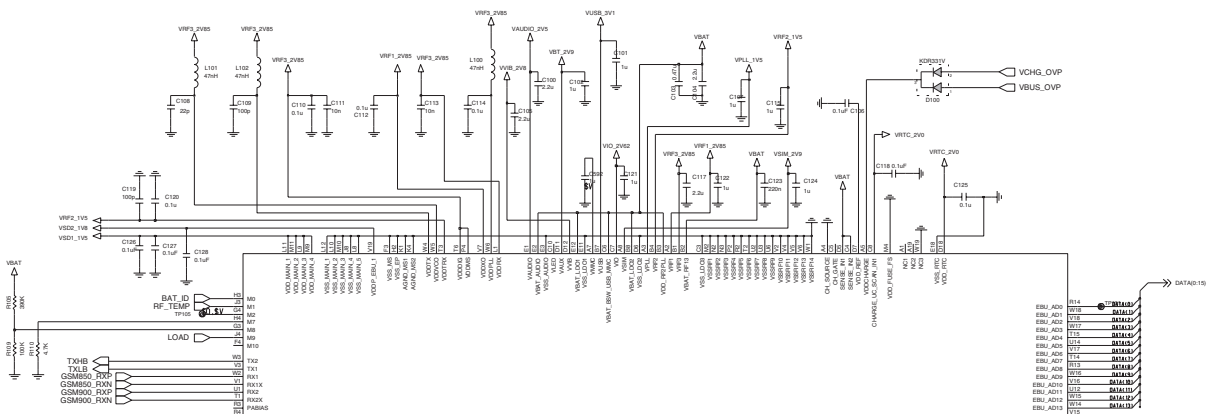


**Fig 1 Troubleshooting flowchart of general circuits**

### 6.12.2 Power circuit

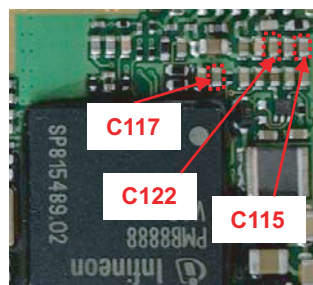


**Fig 2 Debugging flowchart of Power circuit**



**Fig 3 Power circuit (U102)**

- ✓ Output voltage (=LDO output of U102)
  - check LDO output voltage of U102
    - I.e. VRF1\_2V85 (C122),  
VRF2\_1V5 (C115),  
VRF3\_2V85 (C117)



6.12.3 DCXO circuit

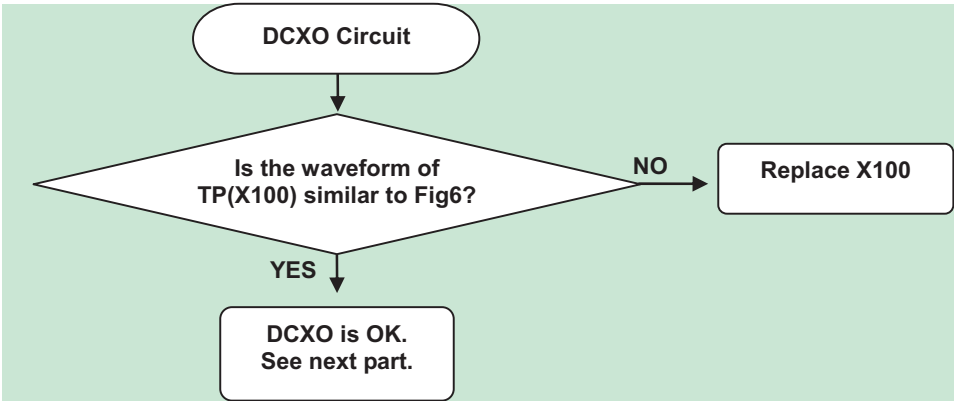


Fig 4 Debugging flowchart of DCXO circuit

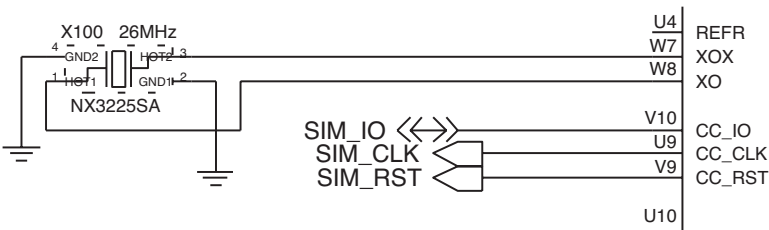
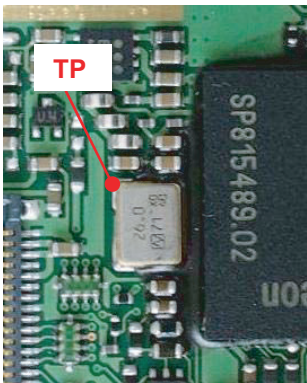


Fig 5 DCXO circuit (X100)

✓ The output voltage of X100 is 890mV<sub>p-p</sub>.

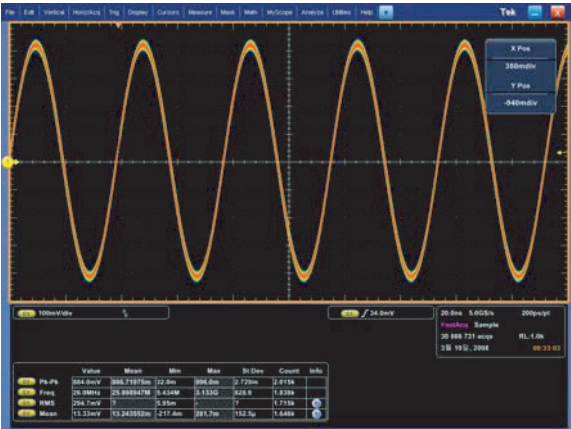
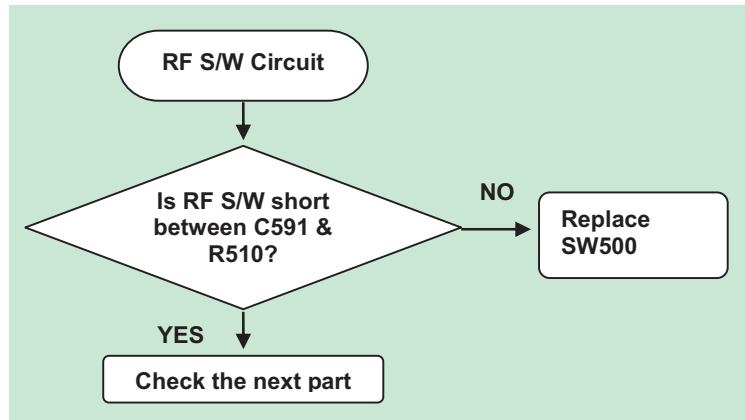


Fig 6 Waveform of DCXO



## 6. Trouble shooting

### 6.12.4 RF Switch (Mobile Switch) circuit



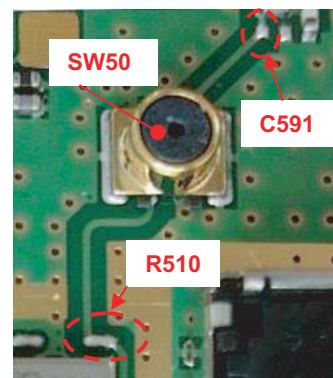
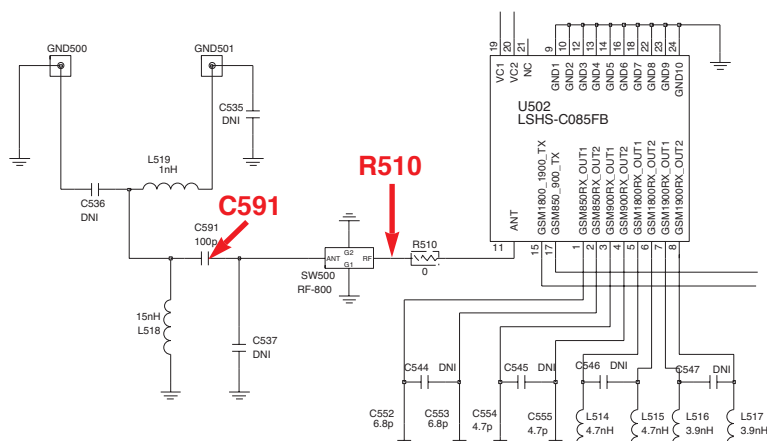
**Fig 7 Debugging flowchart of RF S/W circuit**

#### ✓ Part Description of RF Switch

SW500: Mobile Switch (RF S/W) Connector

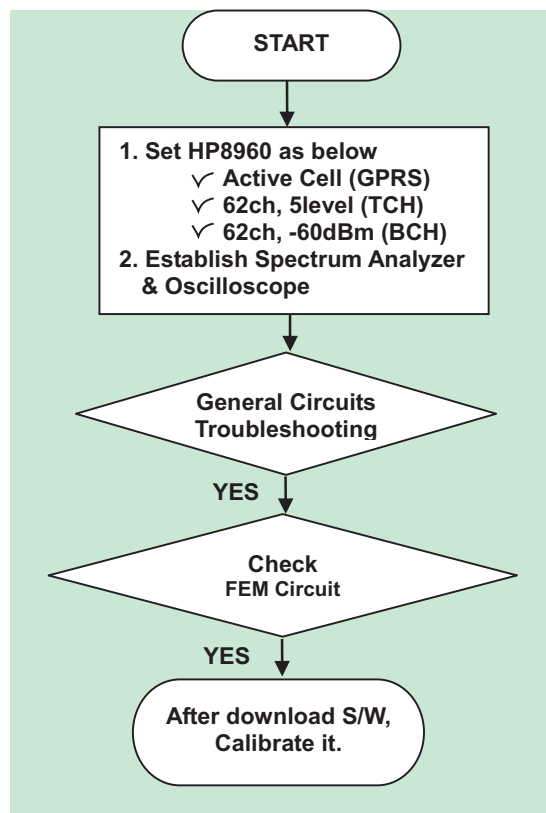
U102: Baseband Processor including RF transceiver

#### ✓ Check point of RF S/W (Mobile S/W)



**Fig 8 RF S/W circuit (U502)**

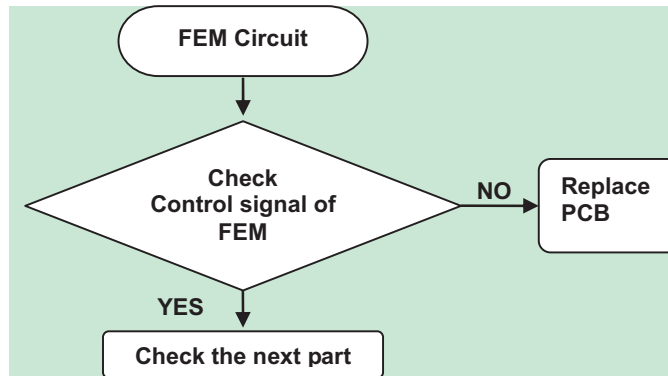
### 6.13 RF Receiver path Troubleshooting



**Fig 9 Troubleshooting flowchart of RF Receiver path**

## 6. Trouble shooting

### 6.13.1 FEM Circuit

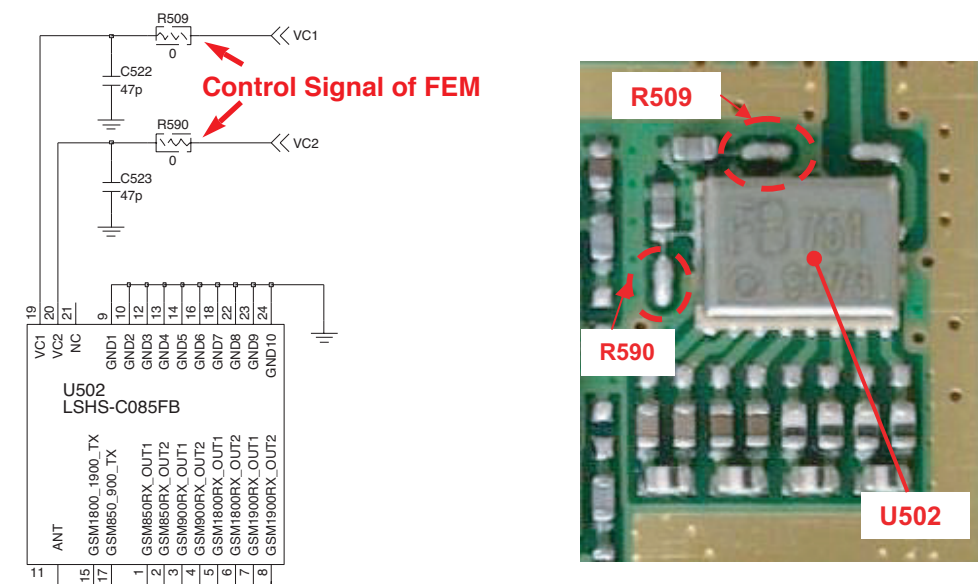


**Fig 10 Debugging flowchart of FEM circuit**

#### √ Part Description of FEM

Application	Mode	VC1	VC2
EGSM	Tx	High	Low
	Rx	Low	Low
DCS1800	Tx	Low	High
PCS1900	Rx	Low	Low

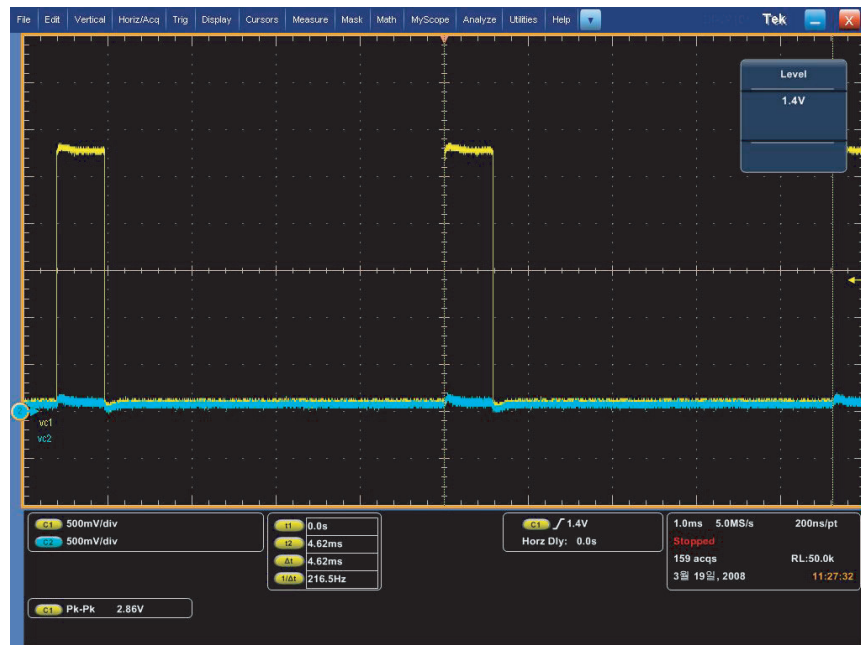
#### √ Check point of FEM



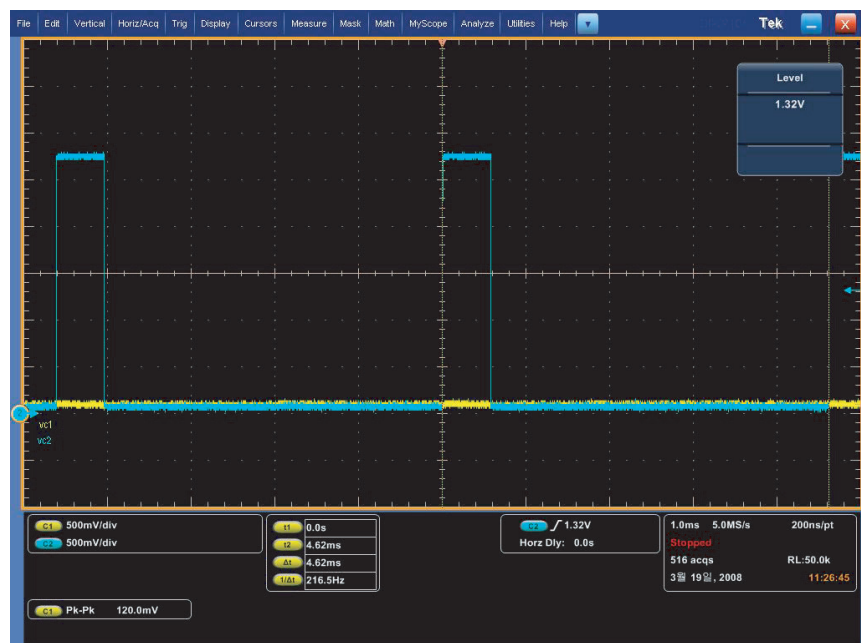
**Fig 11 FEM circuit (U502)**

## 6. Trouble shooting

✓ When GSM band called, it must seem as below. (yellow is VC1, blue is VC2)

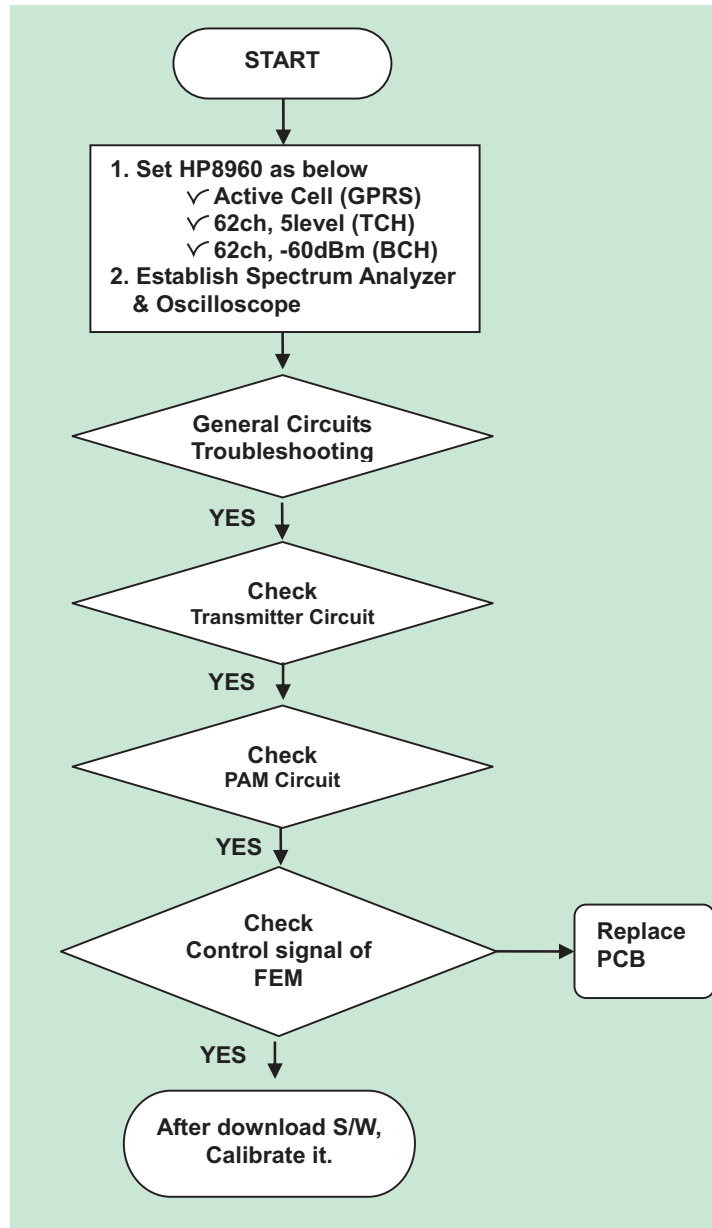


✓ When D/PCS band called, it must seem as below. (yellow is VC1, blue is VC2)



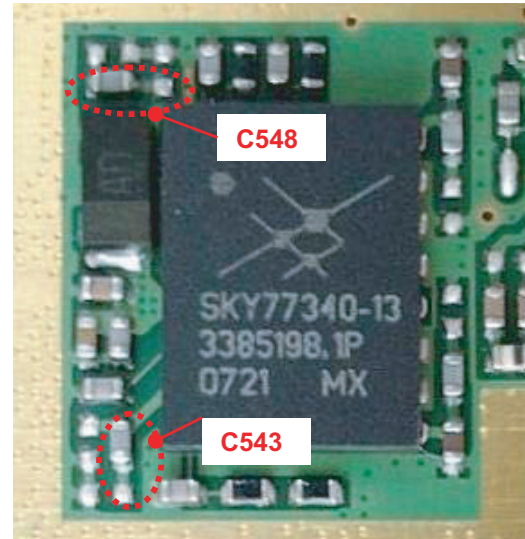
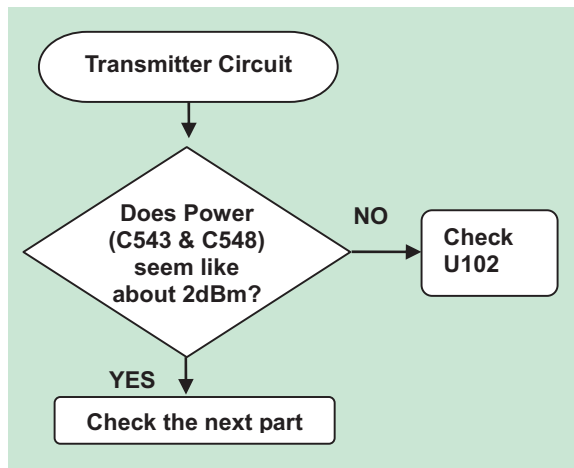
## 6. Trouble shooting

### 6.14 RF Transmitter path Troubleshooting

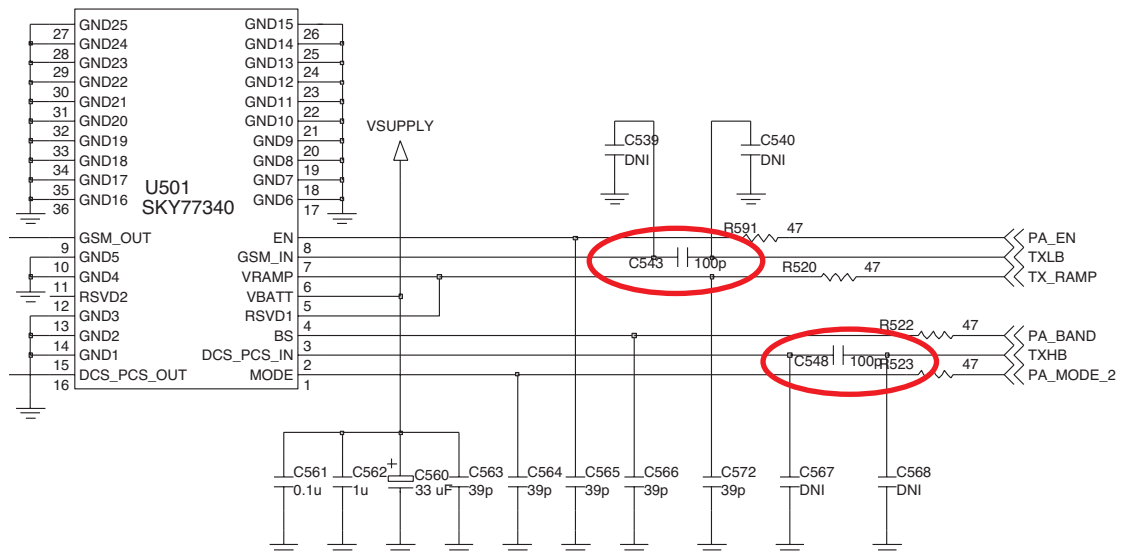


**Fig 12 Troubleshooting flowchart of RF Transmitter path**

### 6.14.1 Transmitter Circuit



**Fig 13 Transmitter circuit (U102)**



✓ Check point of PAM

- Transmitter output power (=C548, C543) is approximately 2dBm.

## 6. Trouble shooting

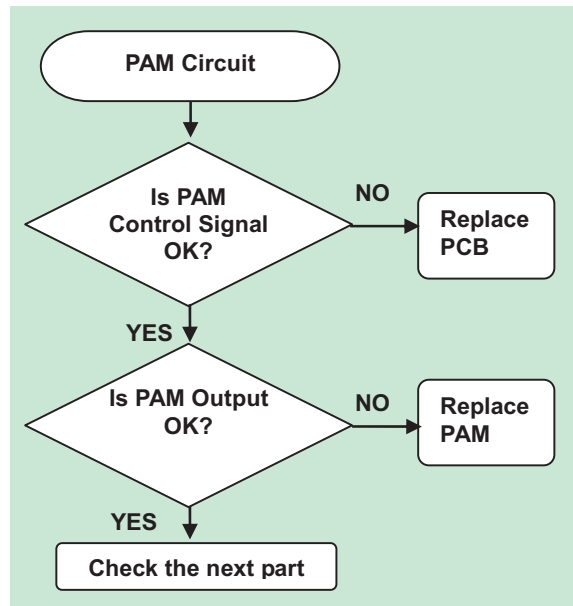
### 6.15 PAM Circuit

√ PAM circuit contains as below

- Band select switching circuitry (BS) to select GSM (Logic 0) and DCS/PCS (Logic1).
- VRAMP controls the level of output power for GMSK modulation and shape of Tx burst.
- For GMSK operation, set the PA\_EN input High, and PA\_MODE2 low(0.5v)

Operational status	PA_EN	PA_BAND	PA_MODE2	TX_RAMP
Standby/PA off	0	X	X	X
Low Band GMSK Tx	1	0	0	Active
Low Band EDGE Tx	1	0	1	X
High Band GMSK Tx	1	1	0	Active
High band EDGE Tx	1	1	1	X

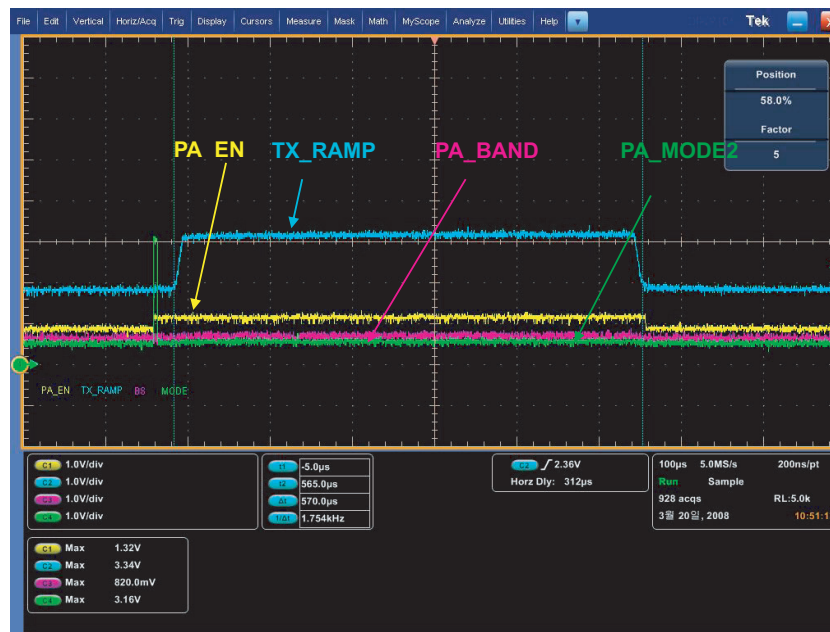
X= don't care



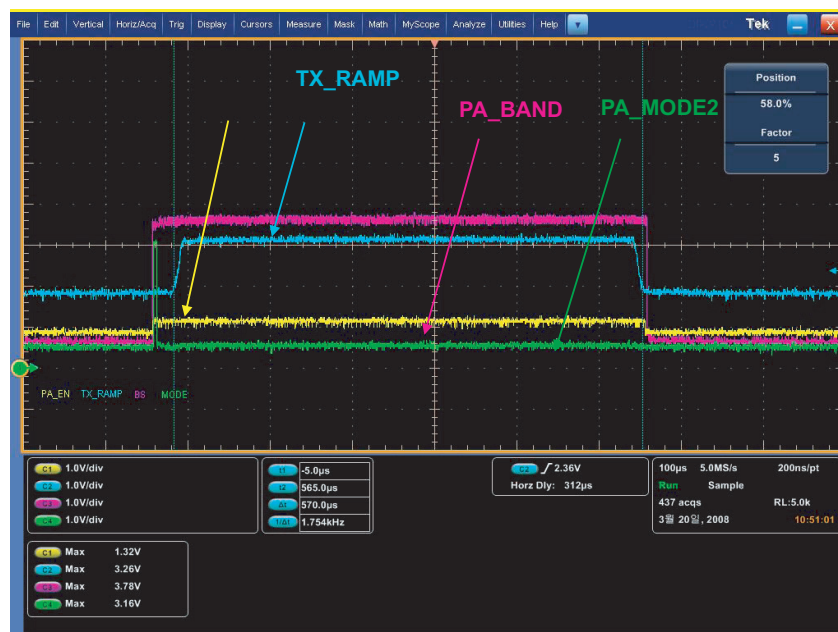
**Fig 14 Debugging flowchart of PAM circuit**

√ When EGSM band called, it must seem as below.

## 6. Trouble shooting

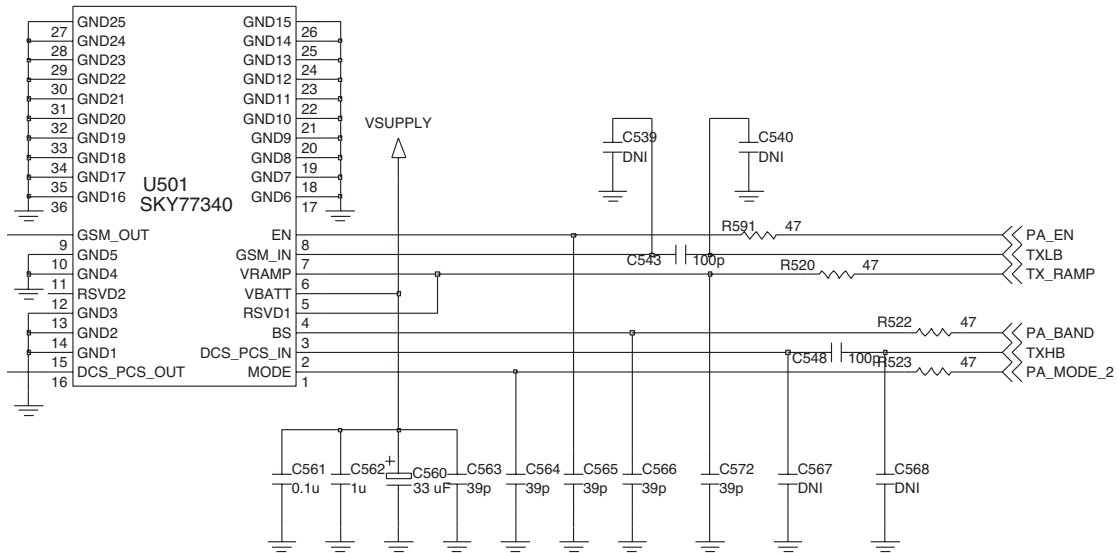


✓ When D/PCS band called, it must seem as below.





## 6. Trouble shooting

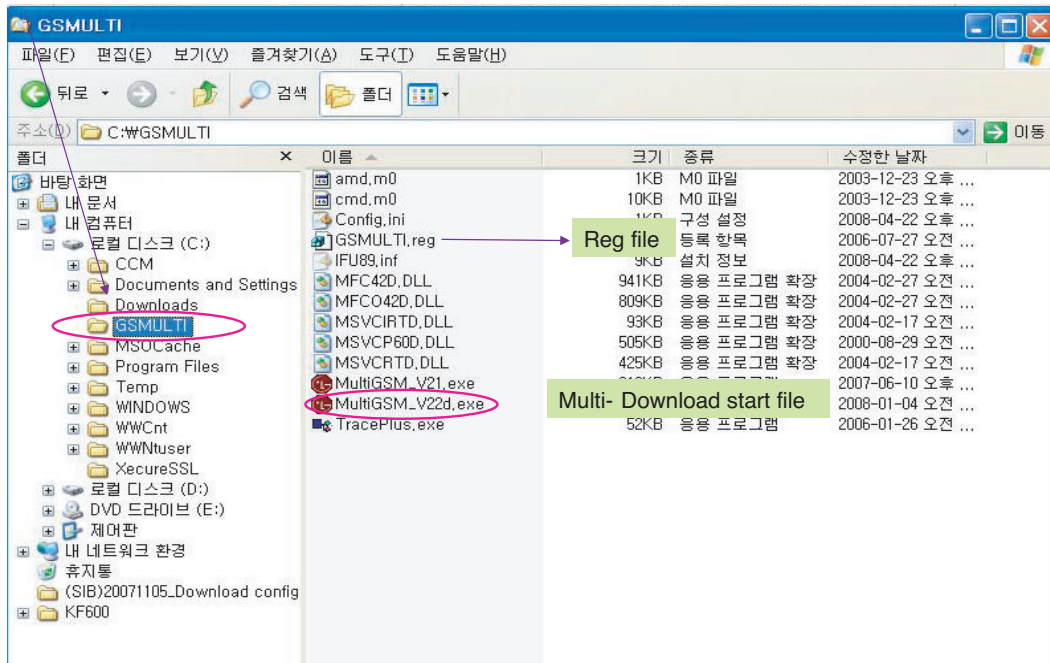


**Fig 15 PAM circuit (U501)**

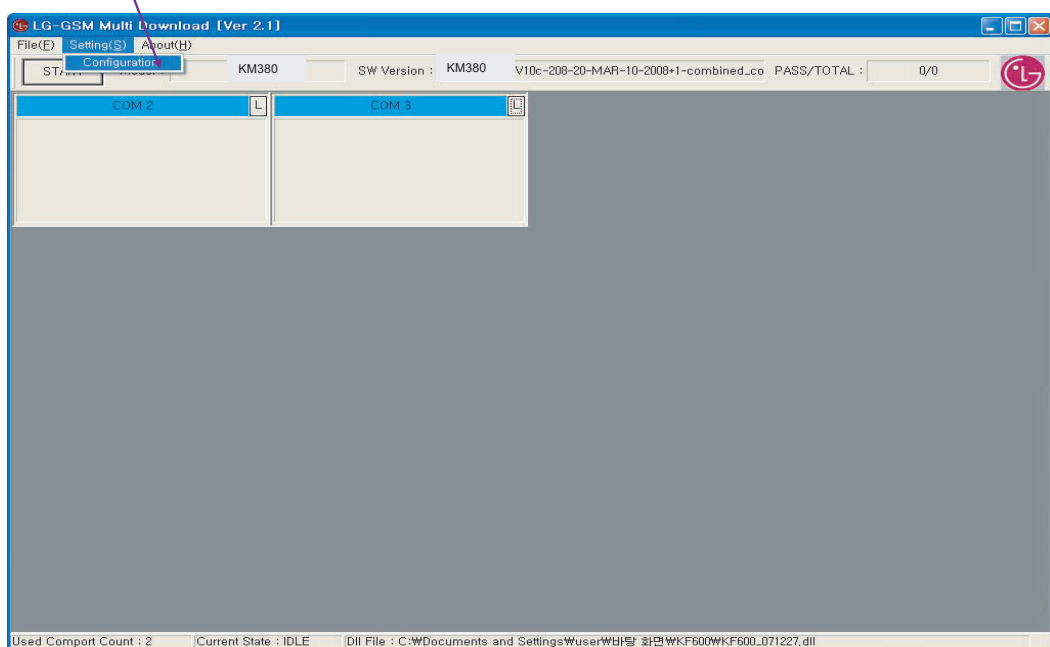
## 7. Download & S/W upgrade

### 7.1 Download program user guide

#### 1. After “GSMULTI” folder copy, paste C:\



#### 2. “MultiGSM.exe” execution file execute



## 7. Download & S/W upgrade

### 7.2 Multi-Download Program Setting(Model-Base)

#### ■ Multi-Download Program Execution → Setting : Configuration

Model DLL File (C:\GSMULTI\Model)

Phone Software select (mot,m0 file)

TI RAM Loader ( Only TI Model , ADI Model : Don't care) (C:\GSMULTI\Model)

Download speed (bps)

Start Com port

End Com port

Frame count select

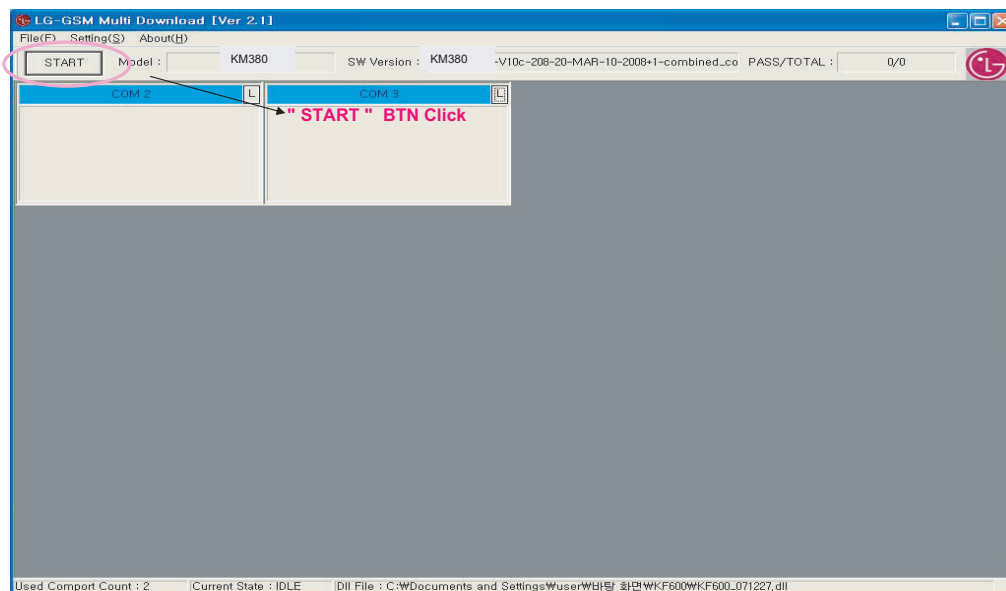
Internal / External boot select (Only TI Model) (External boot : G7000, G7030)

After setting completed iOKi BTN click

- Download speed :TI Model → 115200bps, ADI Model → 460800bps
- Start COM:1, End COM:16
- Frame:16

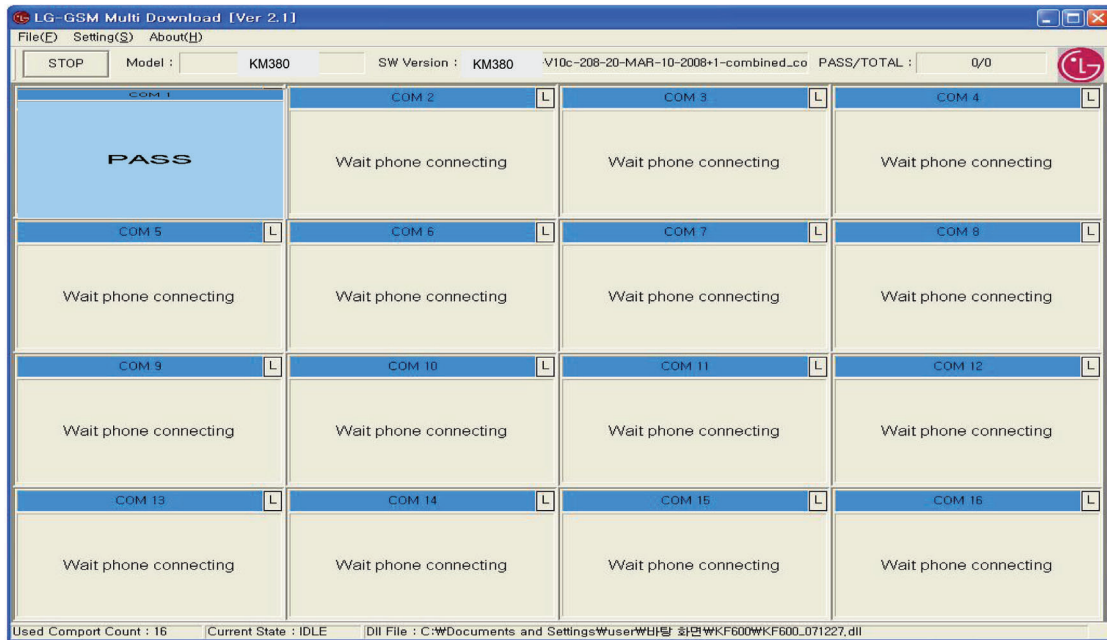
16port Setting  
Default condition

#### ■ Setting Completed



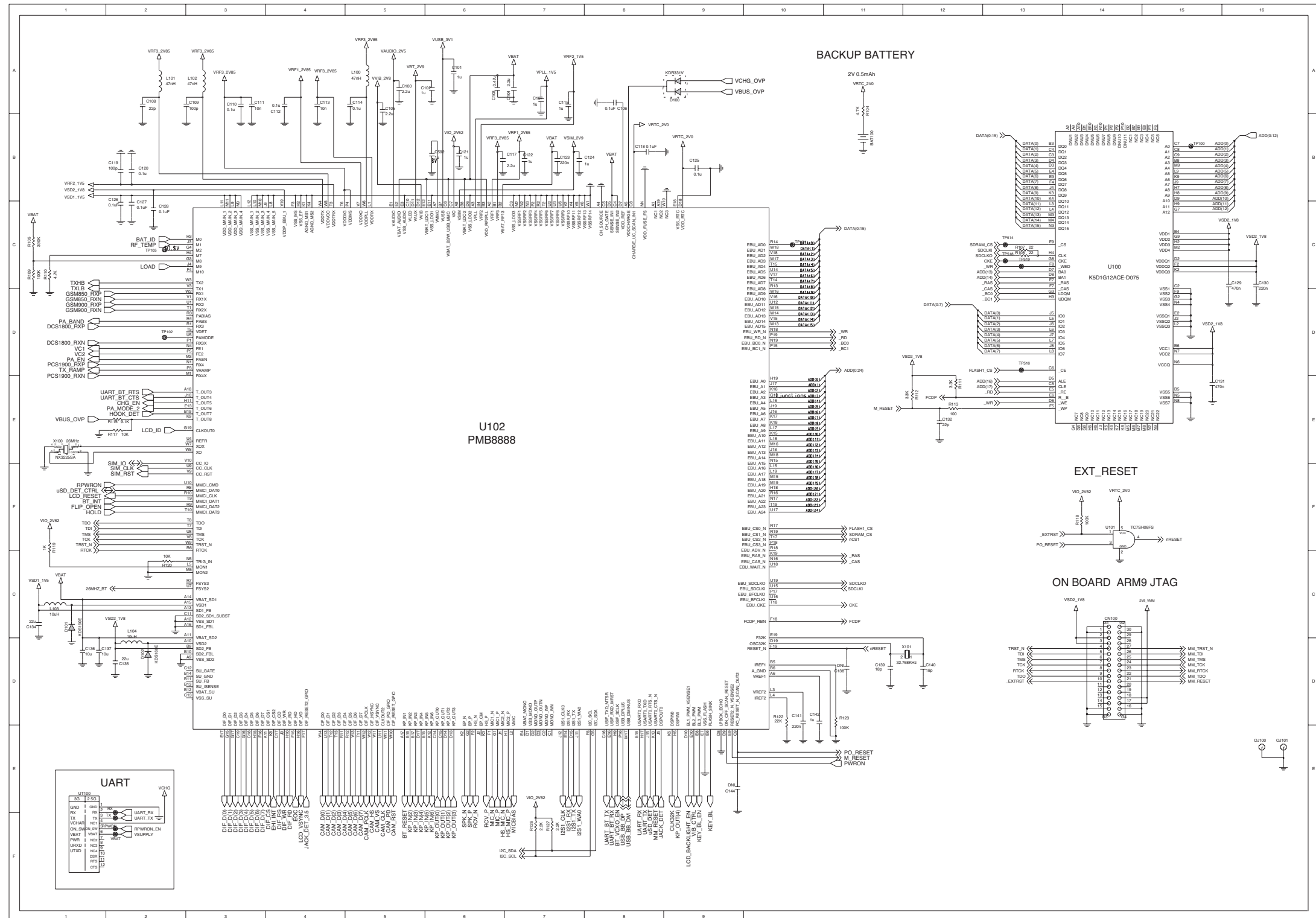
## 7. Download & S/W upgrade

### ■ Stand-by Condition: “Wait phone connecting” confirm → Phone connection

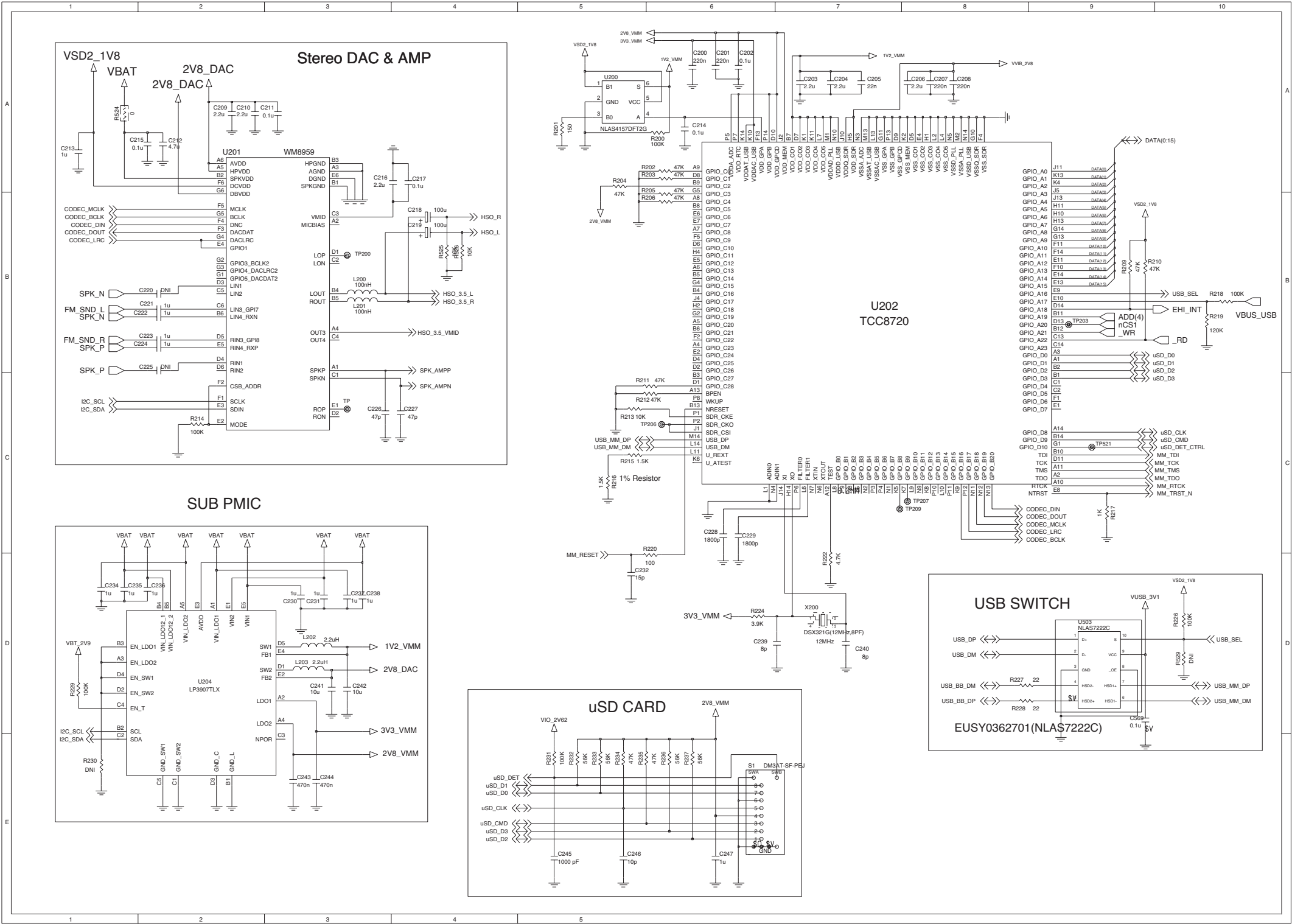




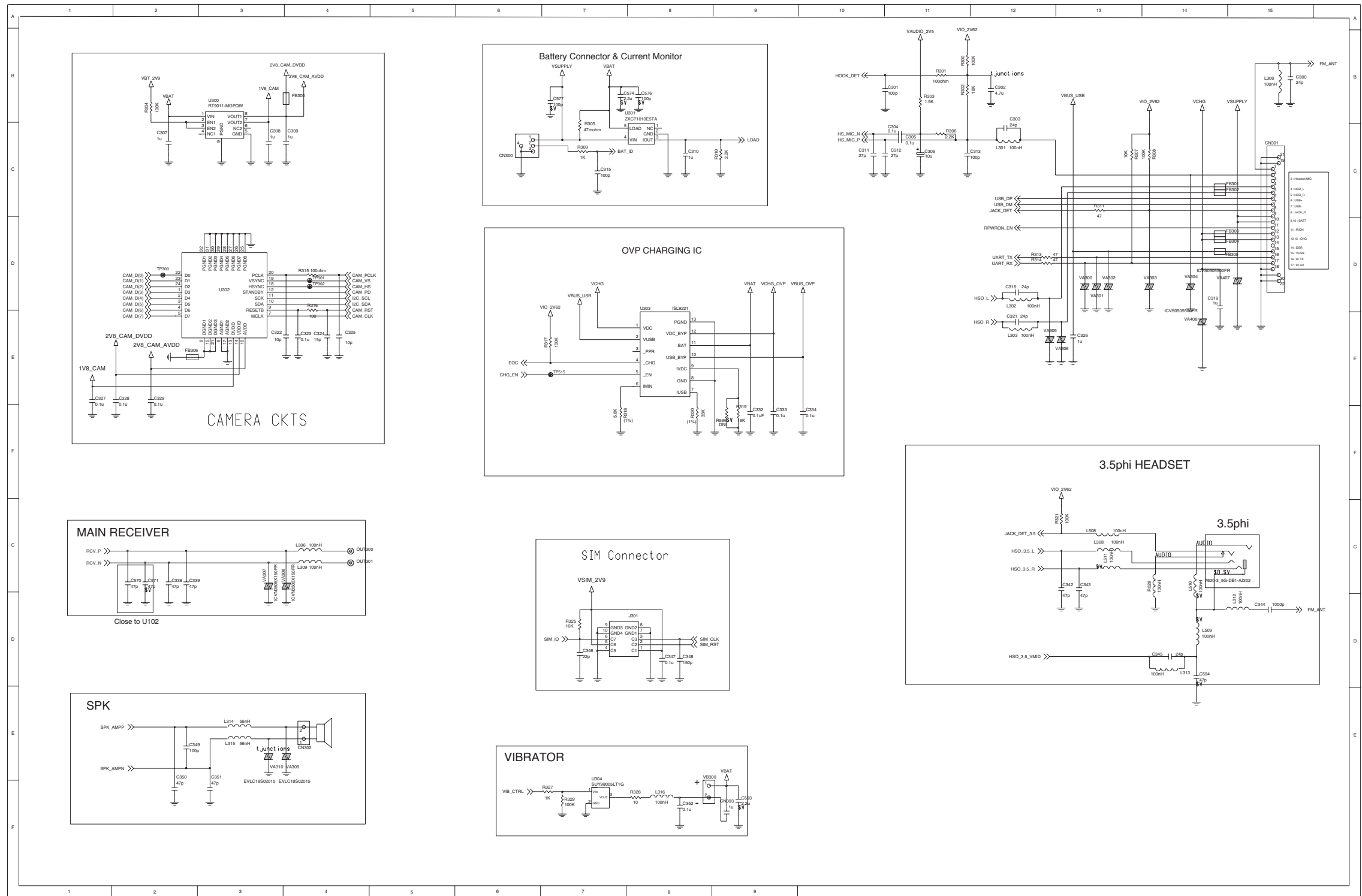
## 8. CIRCUIT DIAGRAM



8. CIRCUIT DIAGRAM

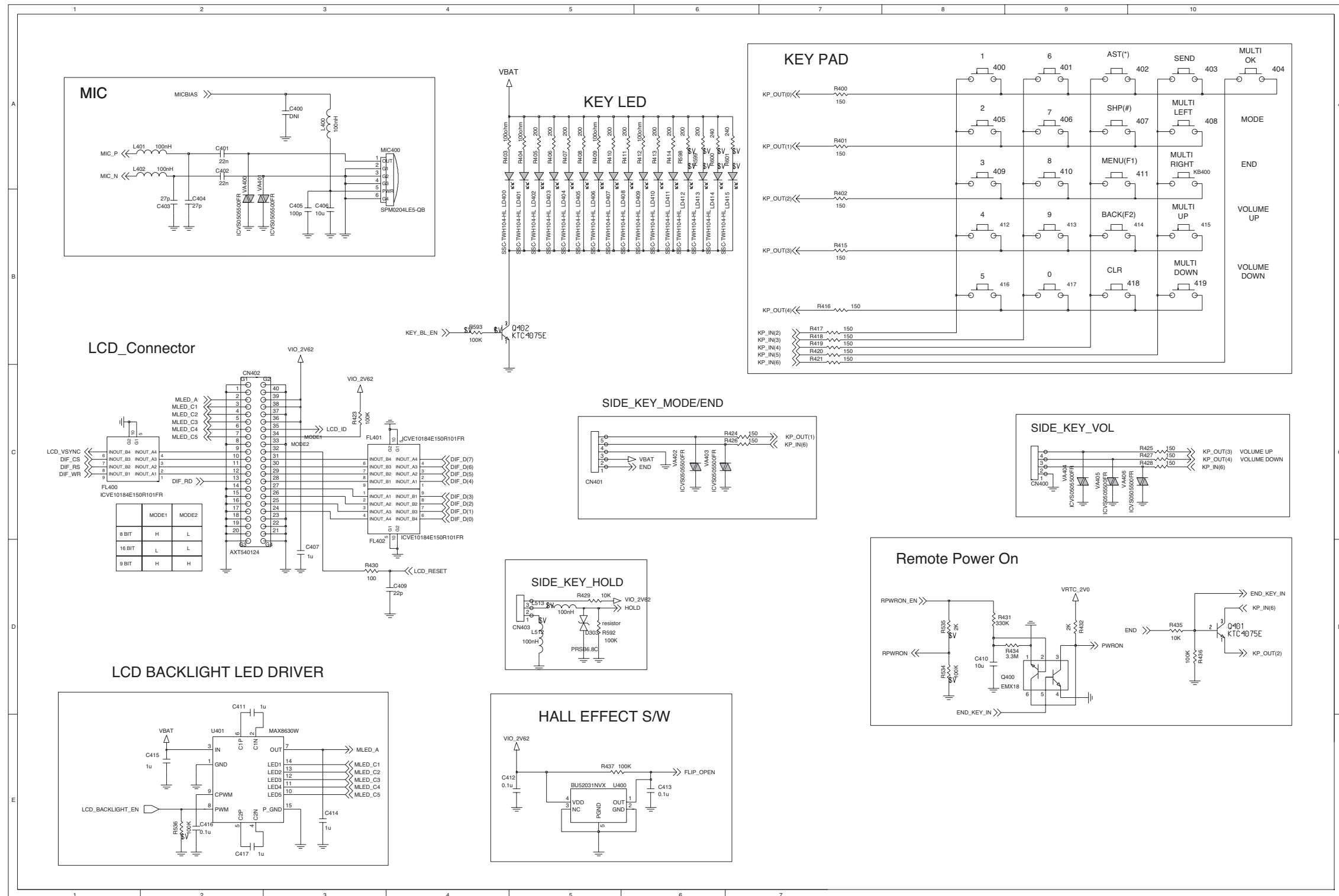


## 8. CIRCUIT DIAGRAM

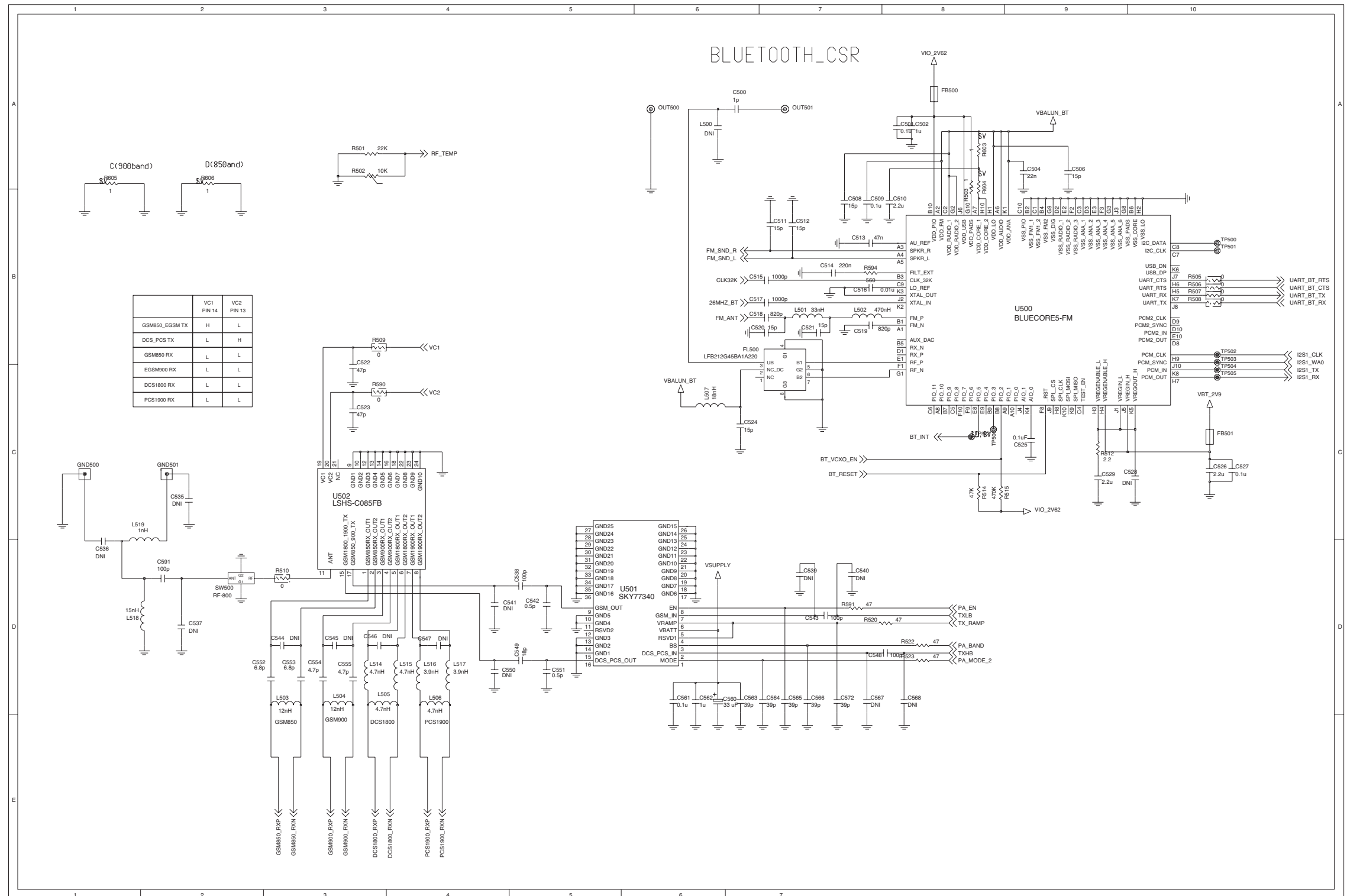




## 8. CIRCUIT DIAGRAM



## 8. CIRCUIT DIAGRAM





## 9. BGM Pin Map

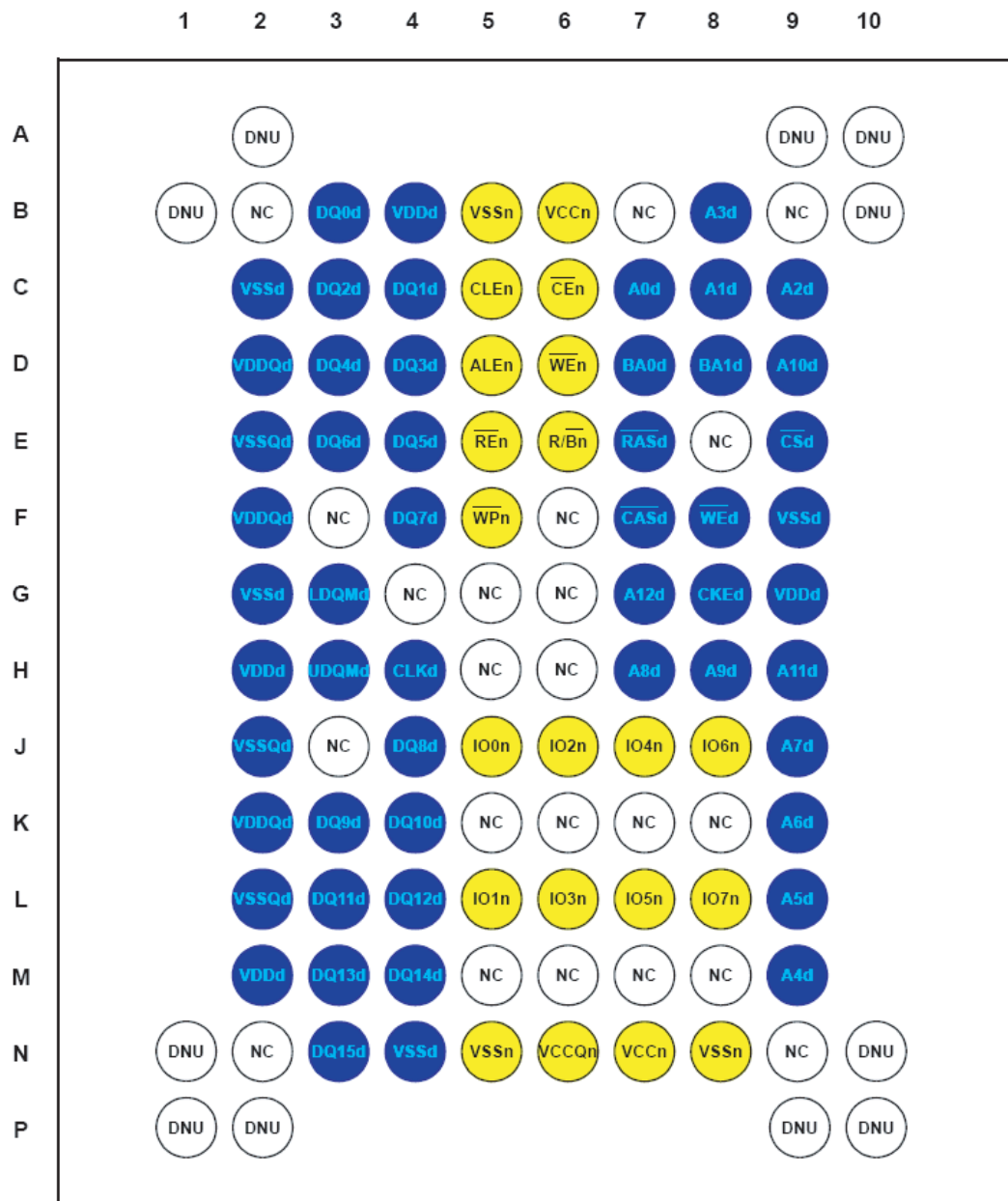
### BGA IC Pin Check (U102, PMB8888)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
A		VRF1	VPLL	CHAR_GE_S	VDD_CHAR	VREF	VMM_C	VSIM	VSS_SD2	VSD2	VBAT_SD2	VSS_SD1	SD1_FB	VBAT_SD1	VSD1	SD1_FBL	KP_IN1	T_OU3		A	
B	VRF3	VBAT_RF1	VDD_RF2P	VRF2	IREF	A_GH_D	VUSB	VBAT_LDO	SD2_FB	SD2_FBL					KP_IN5	KP_IN2	KP_IN3	USAR_T0_R	T_OU7	B	
C			VSSRF	SENS_E_IN2		VBAT_BSW	VIO	VRTC	PO_R ESET		SD2_SD1				KP_O UT0	USIF_UT1	DIF_C_D	DIF_D5	DIF_D3	C	
D					SENS_E_IN1	VSS_LDO2	VDD_REF	LPBCK_EC	ON_O FF	PWM_BL1	VAUX	VVIB	KP_O UT3	KP_O UT2	I2S1_TX		KP_IN4	VDD_RTC	OSC32K	D	
E	VAUD_IO	VBAT_AUD	VSS_AGND			FLASH_SIN	VSS_MAIN	PWM_T2_N	RESE_T2_N	PWM_BL2	VSS_LDO1	VBAT_LDO	T_OU6	I2S1_RX		USIF_RXD	DIF_D0	VSS_RTC	F32K	E	
F	MIC1_N	HS_N	VSS_AGND		I2C_SCL												DIF_H7	DIF_D8	FCDP_RESE_T_N	F	
G	MIC1_P	EP_P	M8	M2	I2C_SDA												DIF_D1	DIF_D4	EBU_A3	G	
H	MIC2_P	VSS_AGND	M0	M7	DSPIN1				USIF_SCLCK	DIF_D	T_OU5						DIF_D6	DIF_V	USAR_A20	H	
J	MIC2_N		M1	M9	DSPOUT0				VSS_MAIN	DIF_WR	T_OU4	I2S1_WA0	I2S1_CLK0				USAR_A6	EBU_A1	EBU_A13	J	
K	VSS_AGND	EP_N	HS_P	VSS_AGND	DSPIN0				DIF_CS2	T_OU8	USAR_T0_C	DIF_C_S1	KP_IN6				EBU_A10	EBU_A2	EBU_A7	K	
L	VDDR_X	VMIC	VREF	IREF	MON1				VSS_MAIN	VDD_MAIN	VSS_MAIN	VDD_MAIN	VSS_MAIN					EBU_A16	EBU_A4	EBU_A11	L
M	RX4X	VSSRF	PAEN	VDD_FUSE	MON2													EBU_A18	EBU_A12	USB_DMIN	M
N	RX4	VSSRF	VSSRF	FE1	TRIG_IN													EBU_A15	EBU_CAS	EBU_A22	N
P	RX3X	VSSRF	VRAMP	VDDMS	FE2													EBU_BC1	USB_DPLU	EBU_BFCL	P
R	RX3	VSSRF		PABS		RTCK		MMCI_DAT	MMCI_CLK	CIF_D4	CIF_D5	EBU_AD8	EBU_AD0				EBU_A21	EBU_CS0		R	
T	RX2X	VSSRF	VDDTRX		VDDDIG	TDI	TDO	MMCI_DAT	MMCI_DAT	CIF_D7	CIF_D2	CIF_D3	EBU_AD7	EBU_AD4				EBU_CS2	EBU_CKE	EBU_A23	T
U	RX2	VSSRF	VSSRF		VSSRF	FSYS2	TMS	CC_C_LK	MMCI_CMD	CLKO UT2	EBU_AD1	CIF_D1	EBU_AD5	EBU_AD1	EBU_AD5	EBU_BFCL	EBU_A24		EBU_SDCL	U	
V	RX1X	VSSRF	TX1	VSSRF	VSSRF	VDDXO	TCK	CC_RST	CC_I_SYNC	CIF_V_SYNC	CIF_H_SYNC	CIF_D6	CIF_D0	EBU_AD1	EBU_AD1	EBU_AD1	EBU_AD6	EBU_AD2	VDDP_EBU	V	
W	VSSRF	RX1	TX2	VDDTX	VDDVCO	VDDPLL	XOX	XO	TRST_n	CIF_R ESET	CIF_P_D	CIF_P_CLK	EBU_AD1	EBU_AD1	EBU_AD1	EBU_AD9	EBU_AD3	EBU_AD1	NC	W	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		

 : Not in use

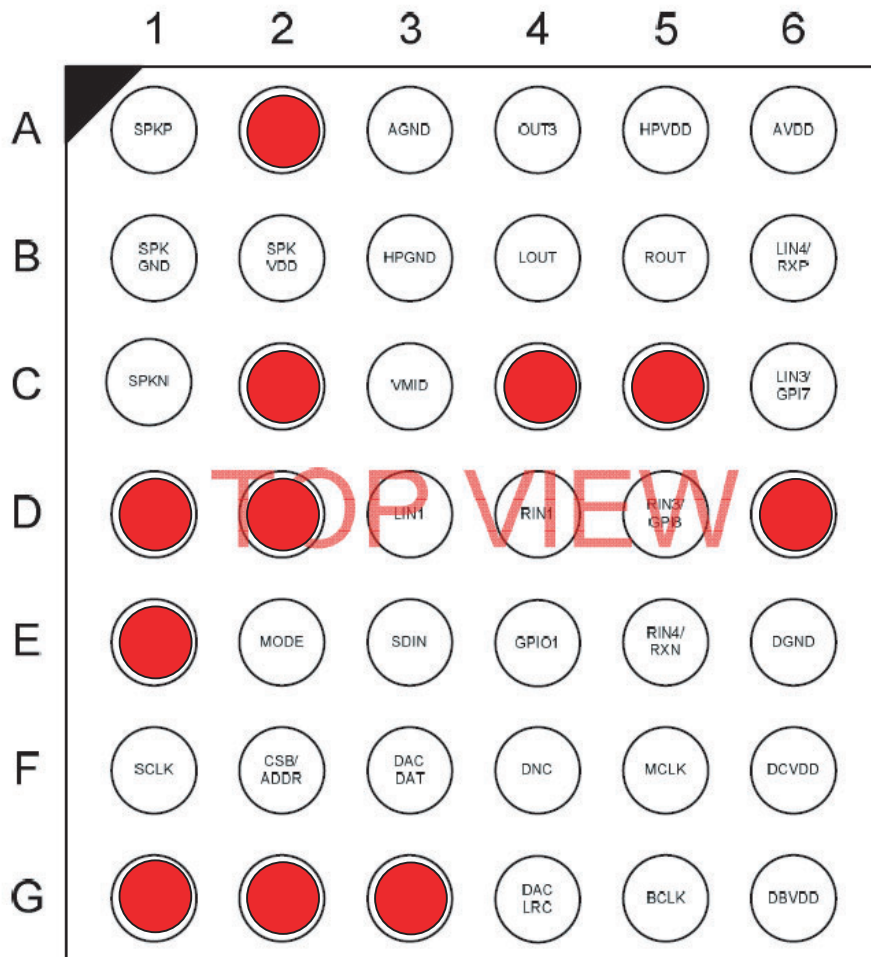
## 9. BGM Pin Map

### BGA IC Pin Check (U100, K5D1G12ACE-D075)




 : Not in use

















































































































































### BGA IC Pin Check (U201, WM8959)



● : Not in use

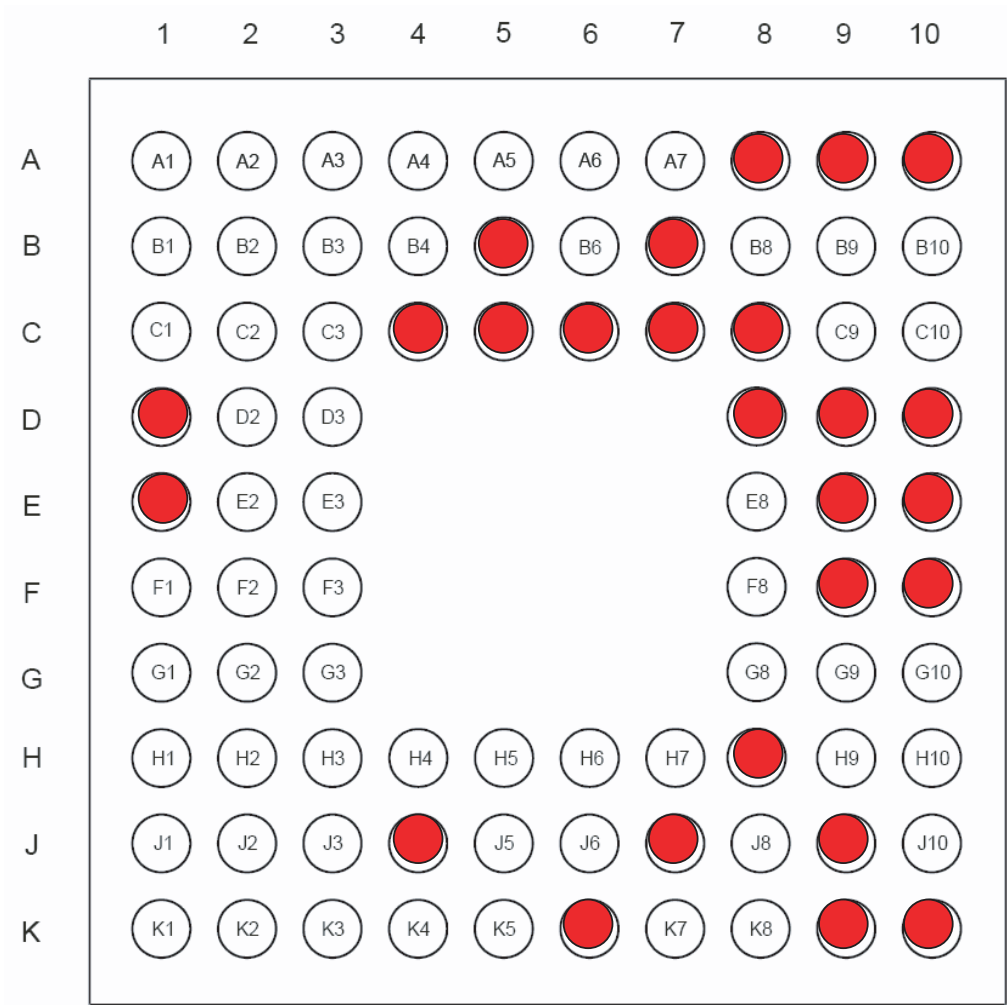
## 9. BGM Pin Map

### BGA IC Pin Check (U202, TCC8720)

	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A	 GPIO_D8	 BPEN	 TEST	 TMS	 RTCK	 GPIO_C0	 GPIO_C4	 GPIO_C8	 GPIO_C13	 GPIO_C20	 GPIO_C23	 GPIO_D0	 TDO	 GPIO_D1	A
B	 GPIO_D9	 nRESET	 GPIO_A21	 GPIO_A19	 TDI	 GPIO_C2	 GPIO_C5	 VDD_CO	 GPIO_C21	 GPIO_C14	 GPIO_C16	 GPIO_C27	 GPIO_D2	 GPIO_D3	B
C	 GPIO_A23	 GPIO_A22											 GPIO_D5	 GPIO_D4	C
D	 GPIO_A18	 GPIO_A20		 TCK	 VDD_GPCD	 VSS_GPCD	 GPIO_C1	 VDD_CO	 GPIO_C10	 VSS_CO	 GPIO_C25		 GPIO_C26	 GPIO_C28	D
E	 GPIO_A14	 GPIO_A15		 GPIO_A12	 GPIO_A17	 GPIO_A16	 nTRST	 GPIO_C7	 GPIO_C6	 GPIO_C12	 VSS_CO		 GPIO_C24	 GPIO_D7	E
F	 GPIO_A11	 VDD_GPA		 GPIO_A10	 GPIO_A13					 GPIO_C9	 VSS_SDR		 GPIO_C22	 GPIO_D6	F
G	 GPIO_A8	 GPIO_A9		 VSS_GPA	 VSSQ_SDR					 GPIO_C3	 GPIO_C15		 GPIO_C19	 GPIO_D10	G
H	 XO	 GPIO_A7		 GPIO_A5	 GPIO_A6					 VDD_SDR	 GPIO_C11		 GPIO_C18	 VSS_CO	H
J	 XI	 GPIO_A4		 GPIO_A0	 VDDQ_SDR					 GPIO_A3	 GPIO_C17		 VDD_MEM	 SDR_CSI	J
K	 VDDAT_USB	 GPIO_A1		 VDD_CO	 VDDAC_USB	 GPIO_B16	 GPIO_B12	 GPIO_B9	 U_ATTEST	 GPIO_B8	 GPIO_A2		 VSS_MEM	 VDD_CO	K
L	 DM	 VSSAC_USB		 U_REXT	 GPIO_B14	 GPIO_B10	 GPIO_B0	 VDD_CO	 FILTER1	 GPIO_B3	 VSS_CO		 VSS_CO	 ADIN0	L
M	 DP	 VSSAT_USB											 VSSA_PLL	 VDDA_PLL	M
N	 VSSD_USB	 GPIO_B20	 GPIO_B19	 GPIO_B18	 VDDQ_USB	 GPIO_B11	 GPIO_B2	 XTIN	 XTOUT	 VSSD_PLL	 ADIN1	 VSSA_ADC	 GPIO_B4	 GPIO_B7	N
P	 VDD_GPB	 VSS_GPB	 GPIO_B17	 GPIO_B15	 GPIO_B13	 GPIO_B1	 WKUP	 VDD_RTC	 FILTER0	 VDDA_ADC	 GPIO_B6	 GPIO_B5	 SDR_CSO	 SDR_CKE	P
	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

 : Not in use

BGA IC Pin Check (U500, BC5FM)

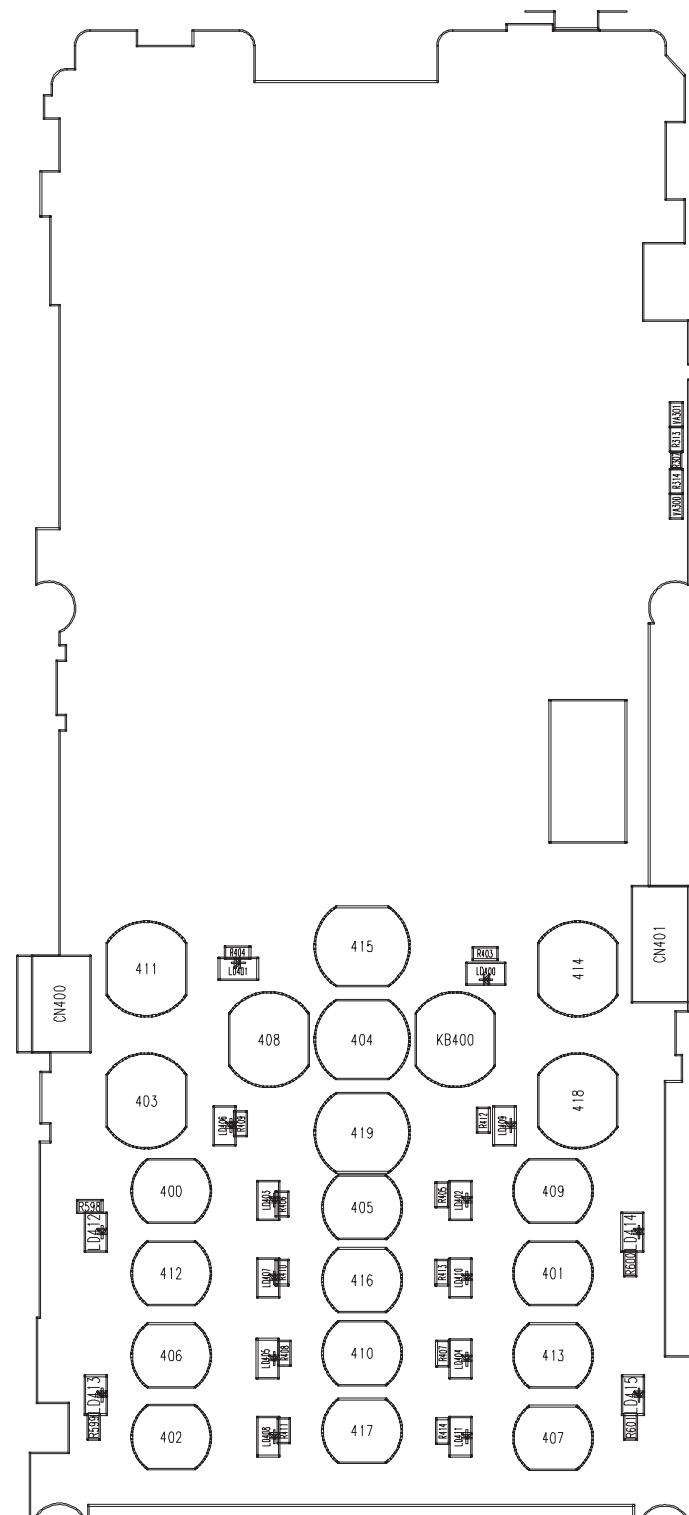


● : Not in use





## 10. PCB LAYOUT



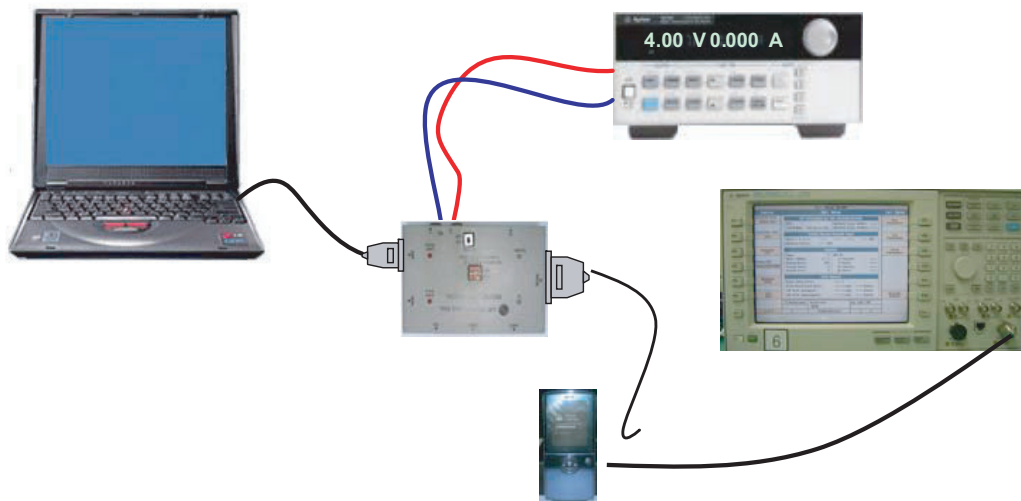
KM380-MAIN-1.0-4M-TOP

## 10. PCB LAYOUT



## 11. RF Calibration

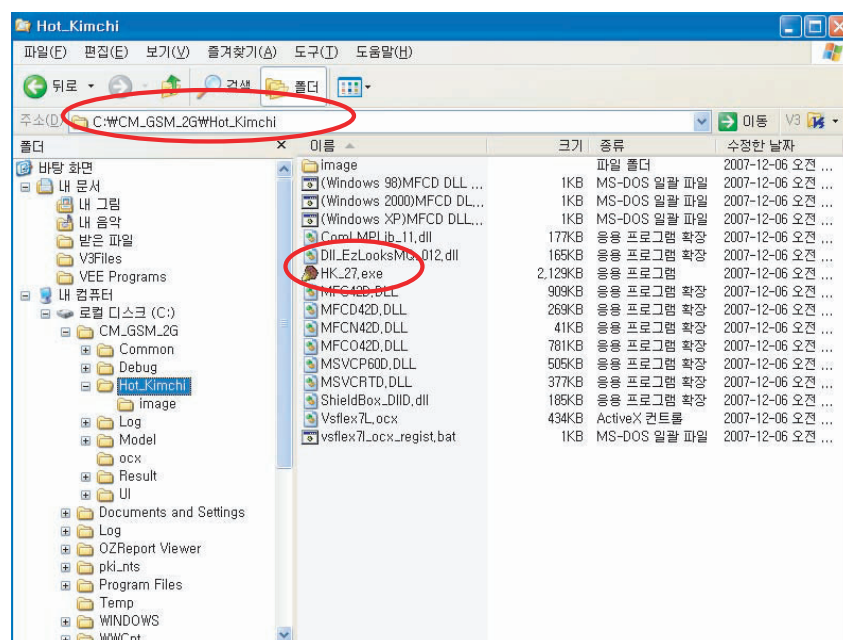
### 11.1 Test Equipment Setup



### 11.2 Calibration Step

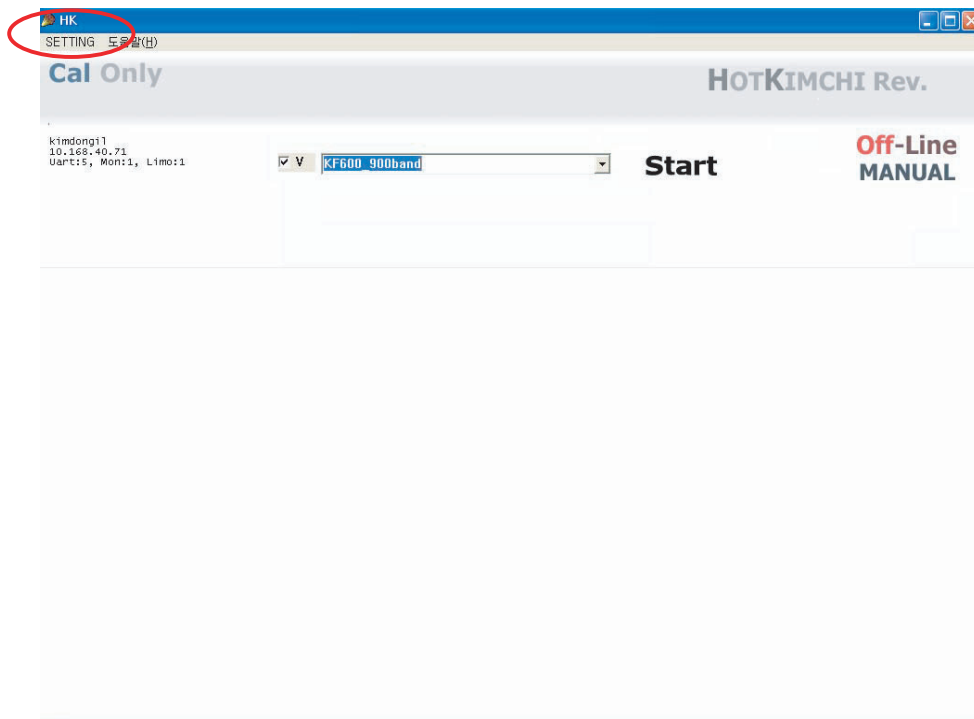
#### 11.2.1 Turn on the Phone

#### 11.2.2 Execute "HK\_27.exe"

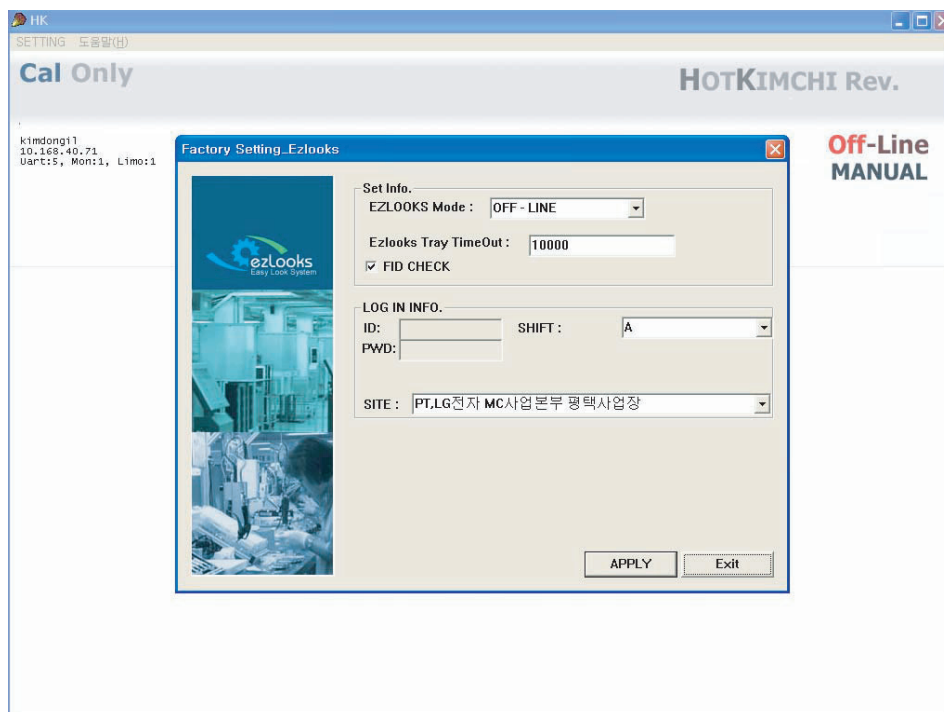


## 11. RF Calibration

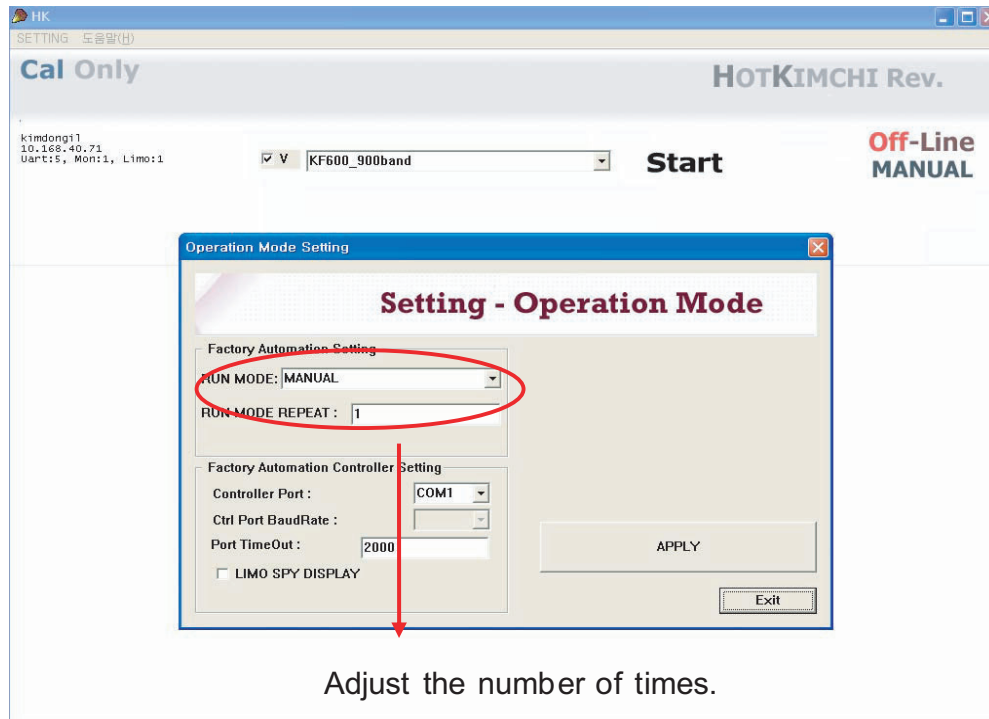
### 11.2.3 Click “SETTING” Menu



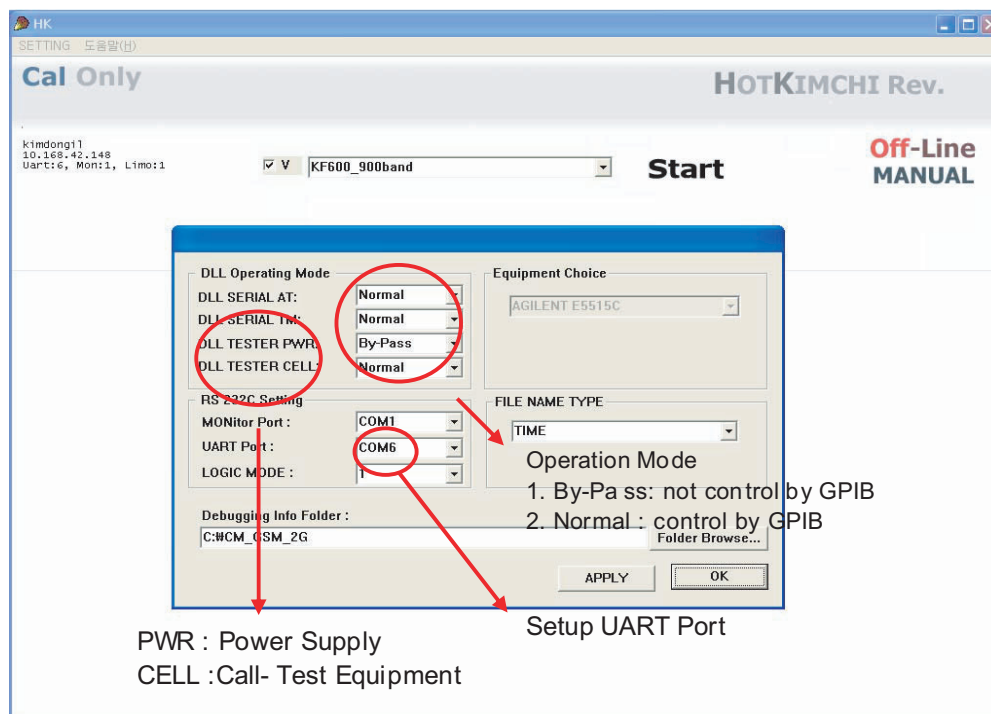
### 11.2.4 Setup “Ezlooks” menu such as the following figure



### 11.2.5 Setup “Line System” menu such as the following figure



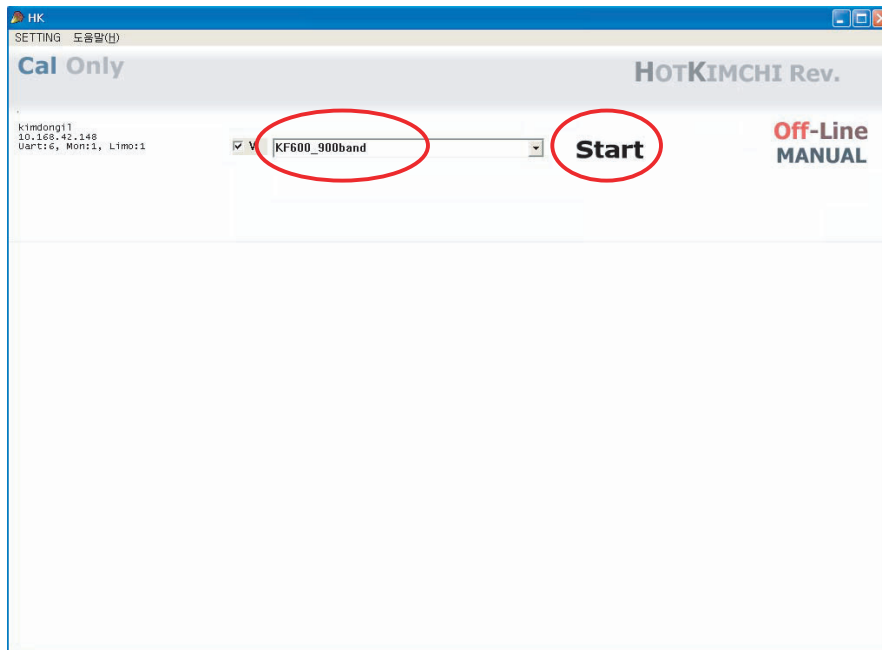
### 11.2.6 Setup Logic operation such as the following figure



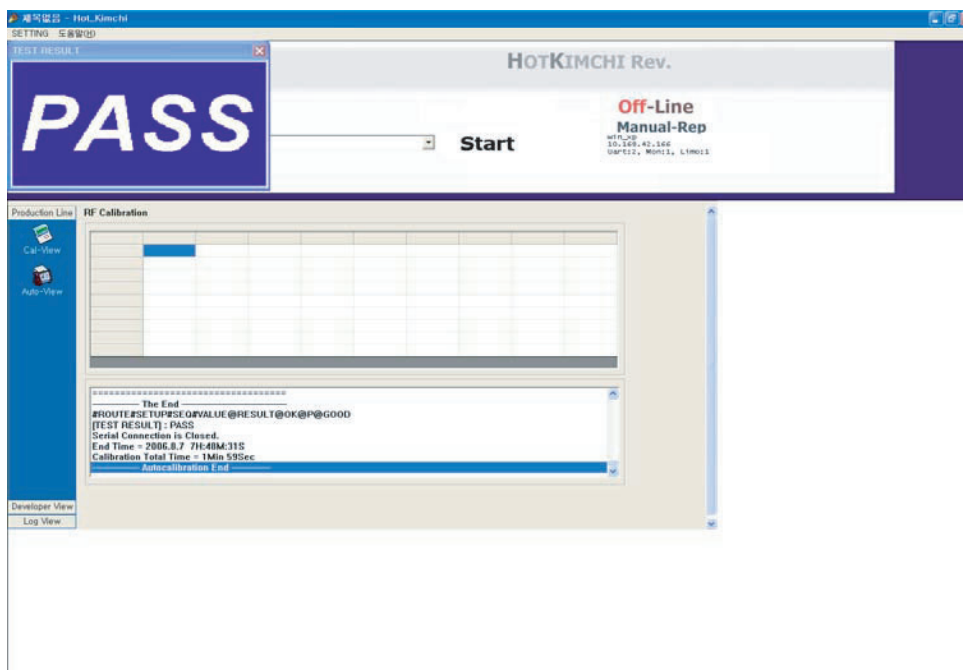
## 11. RF Calibration

### 11.2.7 Select “MODEL”

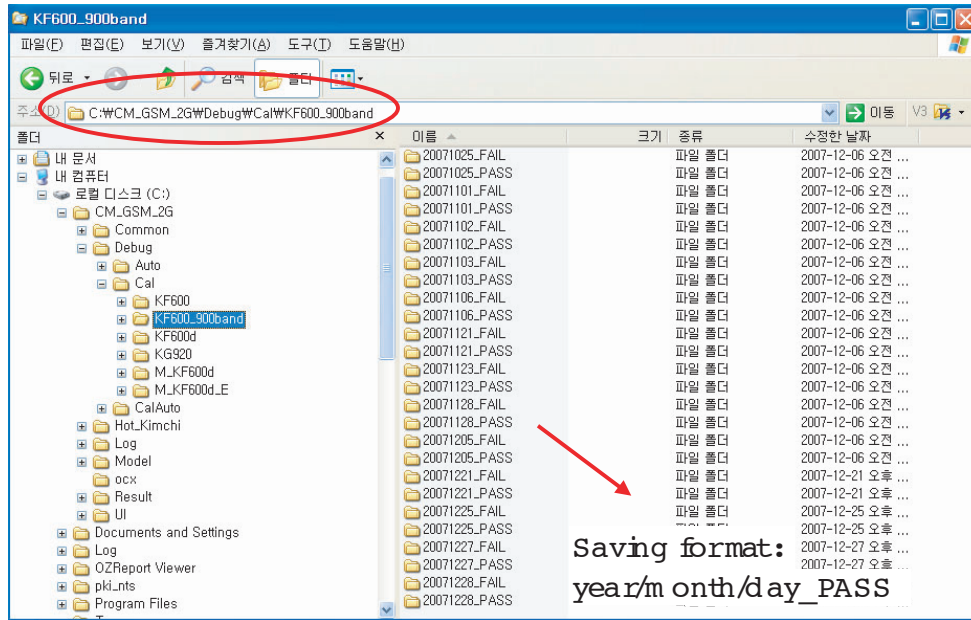
### 11.2.8 Click “START” for RF calibration



### 11.2.9 RF Calibration finishes.



### 11.2.10 Calibration data will be saved to the following folder





## 11. RF Calibration

---

### Notices:

1. The state of Phone is "test mode" during the CALIBRATION.
2. Calibration program automatically changes either "normal mode" or "ptest mode".
3. RF Calibration steps as follow:  
TX Channel compensation: EGSM->DCS->PCS->EDGE EGSM->EDGE DCS->EDGE PCS  
RX Channel compensation: EGSM->DCS->PCS
4. Phone Operation Mode



< Normal Mode >

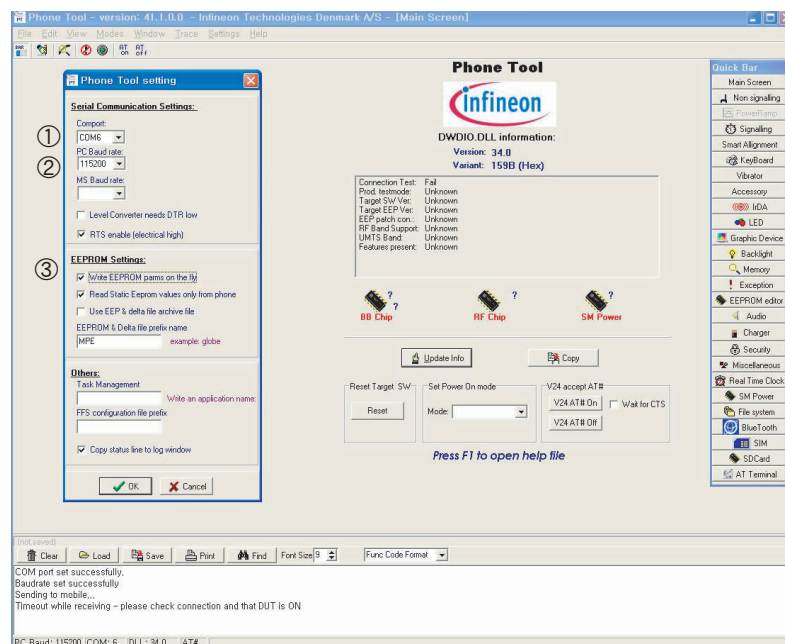


< ptest Mode>

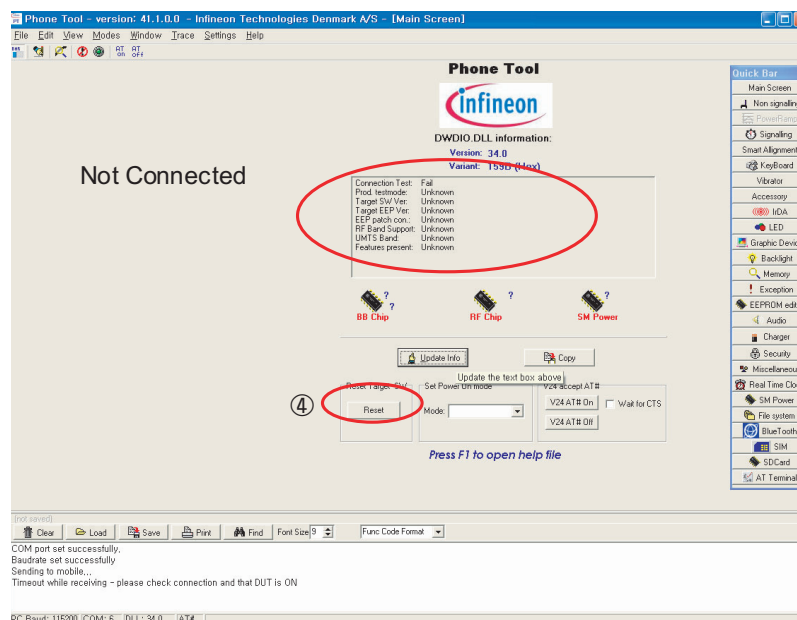
## 12. Stand-alone Test

### 12.1 Test Program Setting

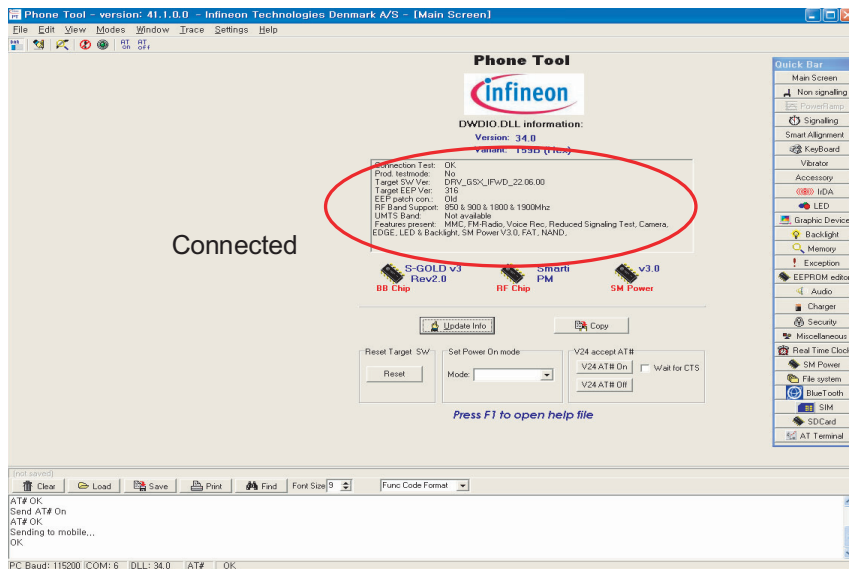
- ① Set COM Port.
- ② Check PC Baud rate.
- ③ Confirm EEPROM & Delta file prefix name.



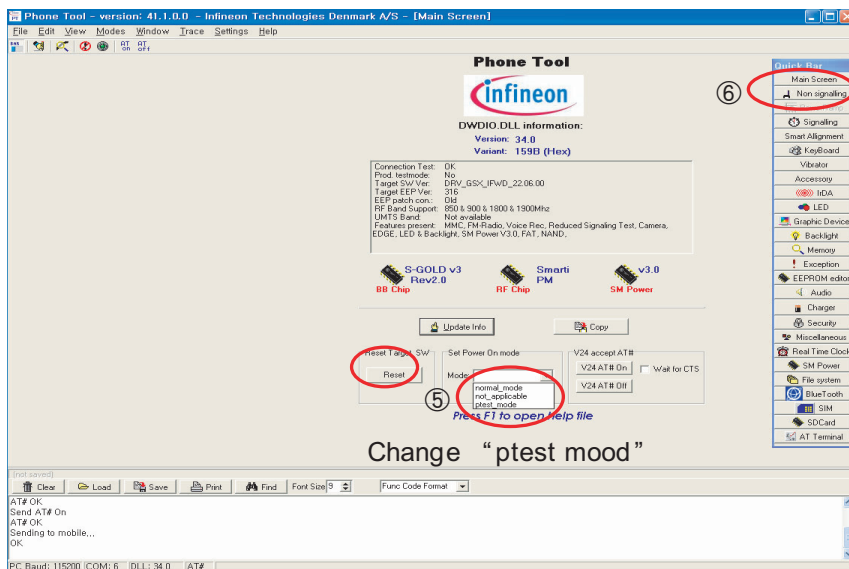
- ④ Click "Update Info" for communicating Phone and Test-Program.



## 12. Stand-alone Test



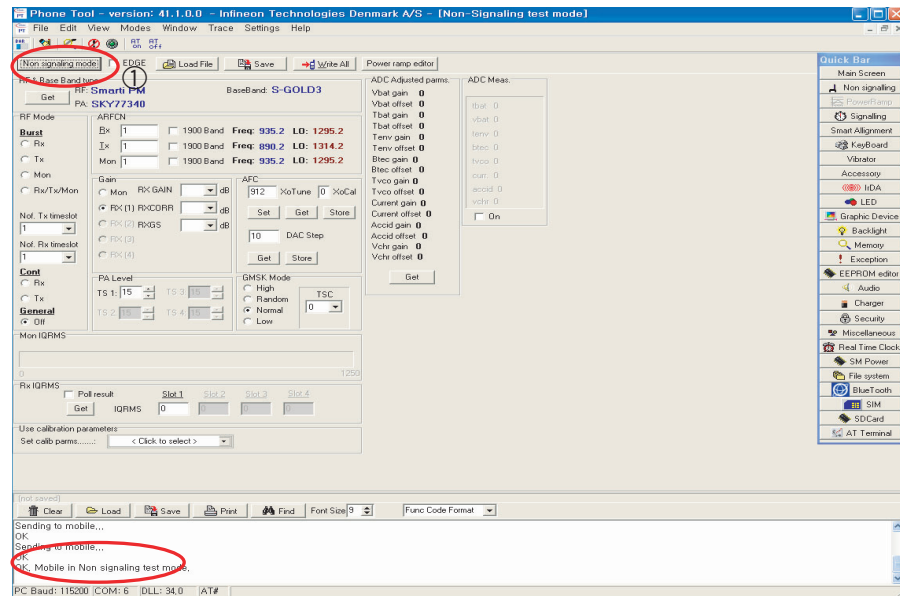
- ⑤ For the purpose of the Standalone Test, Change the Phone to “ptest mode” and then Click the “Reset” bar.
- ⑥ Select “Non signaling” in the Quick Bar menu. Then Standalone Test setup is finished.



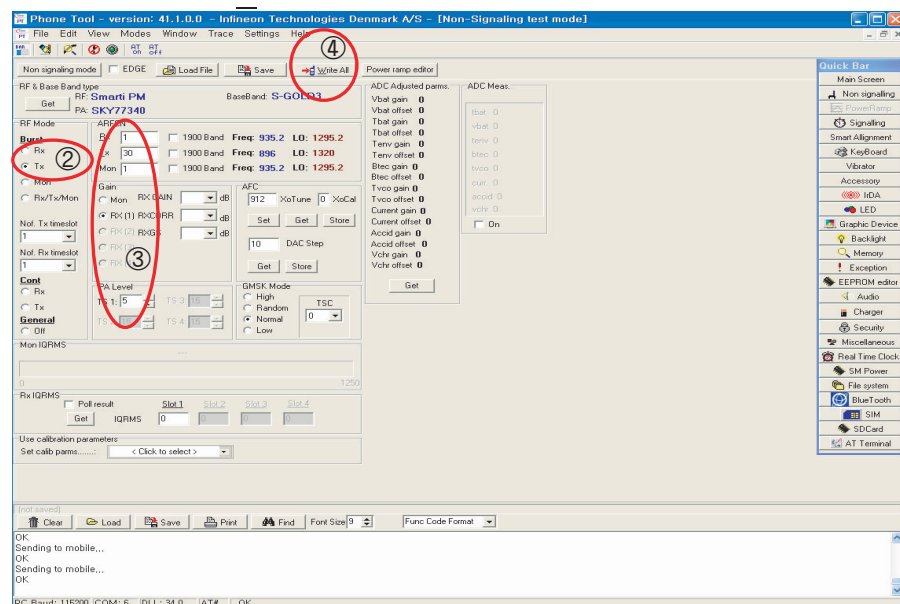
## 12. Stand-alone Test

### 12.2 Tx Test

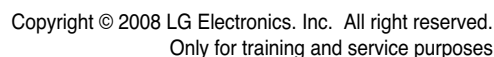
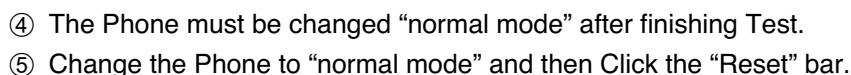
- ① Click “Non signaling mode” bar and then confirm “OK” text in the command line.



- ② Put the number of TX Channel in the ARFCN.
- ③ Select “Tx” in the RF mode menu and “PCL” in the PA Level menu.
- ④ Finally, Click “Write All” bar and try the efficiency test of Phone.



- ① Put the number of RX Channel in the ARFCN.
- ② Select “Rx” in the RF mode menu.
- ③ Finally, Click “Write All” bar and try the efficiency test of Phone.



## 13. ENGINEERING MODE

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset. The key sequence for switching the engineering mode on is "2945##" Select. Pressing END will switch back to non-engineering mode operation. Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back key will switch back to the original test menu.

### **[1] BB TEST**

#### **[1-1] Battery Info**

[1-1-1] BattInfo

#### **[1-2] Bluetooth Test**

[1-2-1] Enter Test Mode

[1-2-2] OnOff Test

[1-2-3] Headset Test

[1-2-4] BT Test1

[1-2-5] BT Test2

[1-2-6] Xhtml Compose Print

[1-2-7] Xhtml Print Test

### **[2] Model Version**

#### **[2-1] Version**

### **[3] Eng Mode**

#### **[3-1] Cell environ.**

#### **[3-2] PS Layer Info**

[3-2-1] Mobility

[3-2-2] RadioRes

[3-2-1] Gprs

#### **[3-3] Layer1 Info**

#### **[3-4] Reset Information**

#### **[3-5] Memory Configuraron**

#### **[3-6] MemGenConf**

#### **[3-7] MemAllUse**

#### **[3-8] MemDetUse**

#### **[3-9] MemDump**

#### **[3-10] Change Frequency Band**

### **[4] Call Timer**

### **[6] MF TEST**

### **[5] Factory Reset**

#### **[6-1] All Auto Test**

#### **[6-2] Backlight**

[6-2-1] BacklightOn

[6-2-2] BacklightOff

#### **[6-3] Audio**

[6-3-1] Audio Test

#### **[6-4] Vibrator**

[6-4-1] VibratorOn

[6-4-2] VibratorOff

#### **[6-5] LCD**

[6-5-1] Auto LCD

#### **[6-6] Key pad**

#### **[6-7] Mic Speaker**

#### **[6-8] Camera**

[6-8-1] Camera Main Preview

[6-8-2] FlashOn

[6-8-3] FlashOff

[6-8-4] CameraFlashBunning

#### **[6-9] FM Radio**

[6-9-1] FM Radio Test

#### **[6-10] Touchpad Test**

### **[7] Network selection**

#### **[7-1] Automatic**

#### **[7-2] GSM850**

#### **[7-3] EGSM**

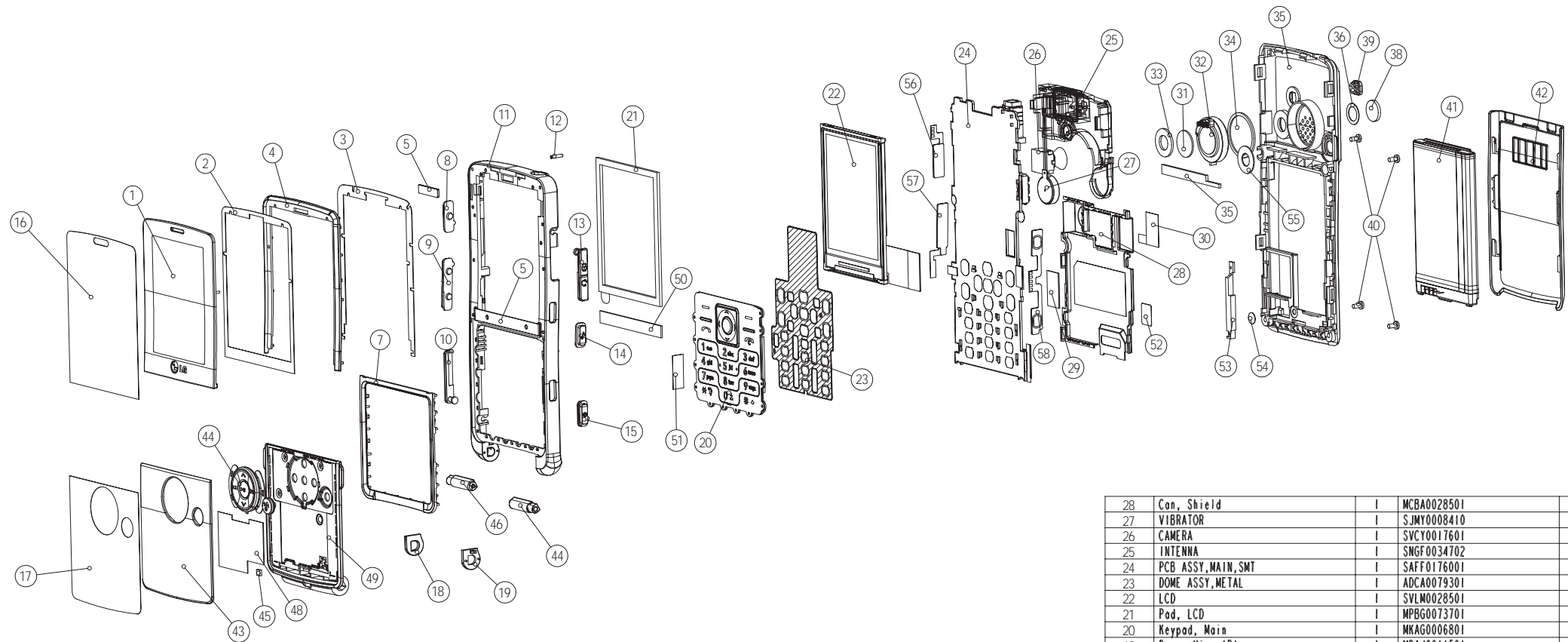
#### **[7-4] DCS**

#### **[7-5] PCS**



14. EXPLODED VIEW & REPLACEMENT PART LIST

14.1 EXPLODED VIEW

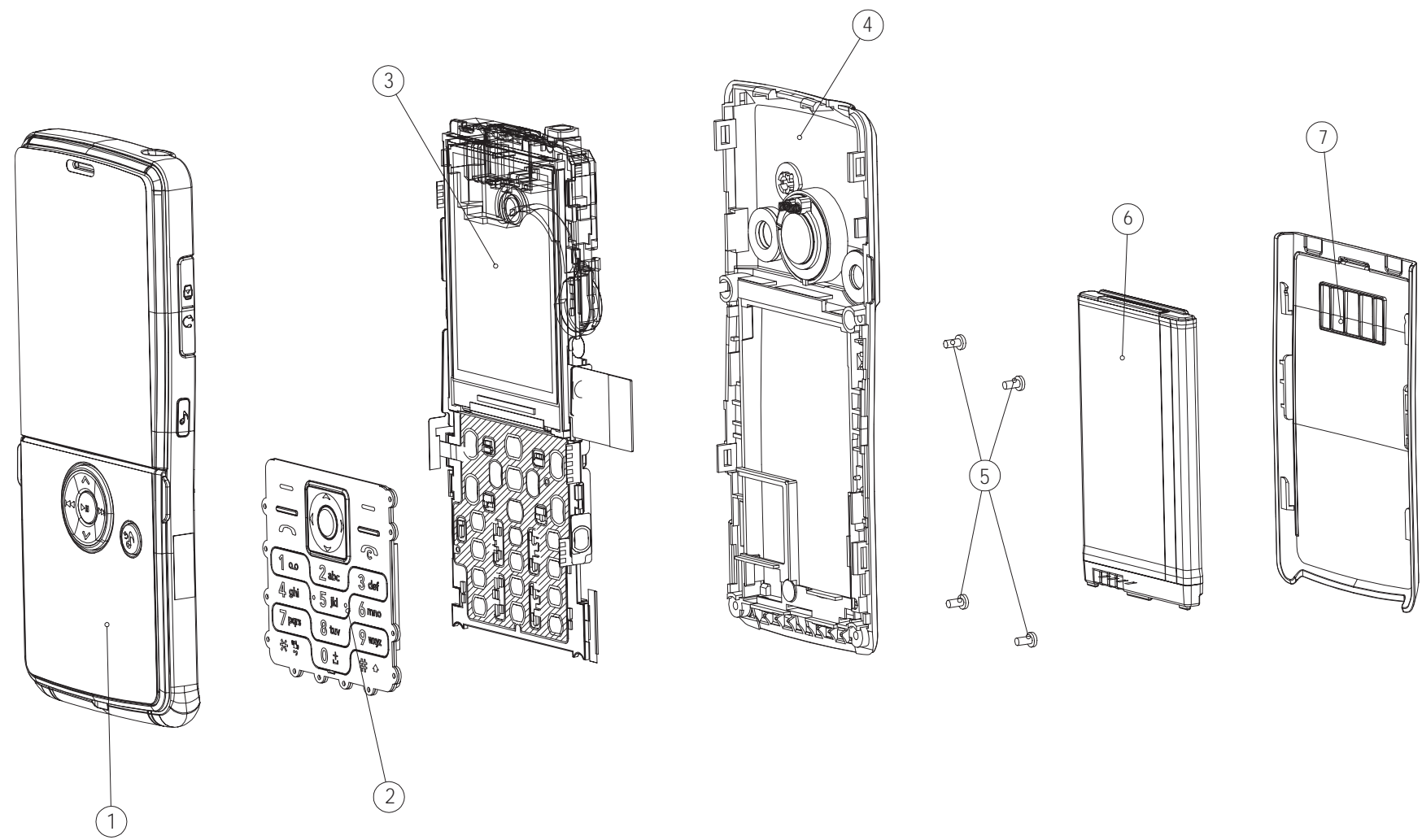


58	PCB, SIDEKEY(MODE)	I	SPKY005740I	
57	PCB, SIDEKEY(VOLUME)	I	SPKY005710I	
56	PCB, SIDEKEY(HOLD)	I	SPKY005700I	
55	Pad, Motor	I	MPBJ005230I	
54	LABEL/AS	I	MLAB0001102	
53	BT	I	SNGF003480I	
52	WEEE LABEL	I	MLAZ004040I	
51	Tape, Protection(SIDE POWER)	I	MTAB023420I	
50	Pad, LCD SUB(전도층)	I	MPBG003560I	
49	Cover, Flip	I	MCJG000290I	
48	Tape, Deco	I	MTAA015600I	
47	Hinge, Flip(R)	I	MHFA000050I	
46	Hinge, Flip(L)	I	MHFA000040I	
45	Magnet	I	MMAA000980I	
44	Button Assy, Sub	I	ABGG000190I	
43	Deco, Flip	I	MDAB000090I	
42	Cover, Battery	I	MCJA005930I	
41	BATTERY PACK	I	SBPL0092906	
40	Screw	4	GMZZ001770I	
39	Cap, Mobile Switch	I	MCCF004960I	
38	Window, Camera	I	MWAE003300I	
36	Tape, Camera	I	MTAK000840I	
35	Cover, Rear	I	MCJN008160I	
34	Filter, Speaker	I	MFBC003740I	
33	Pad, Camera	I	MPBT005400I	
32	Speaker	I	SUSY002580I	
31	Pad, Speaker	I	MPBN005430I	
30	Tape, Antenna	I	MTAZ020910I	
29	Pad, LCD Connector	I	MPBU002040I	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

28	Con, Shield	I	MCBA002850I	
27	VIBRATOR	I	SJMY0008410	
26	CAMERA	I	SVCY001760I	
25	ANTENNA	I	SNGF0034702	
24	PCB ASSY, MAIN, SMT	I	SAFF017600I	
23	DOME ASSY, METAL	I	ADCA007930I	
22	LCD	I	SVLM002850I	
21	Pad, LCD	I	MPBG007370I	
20	Keypad, Main	I	MKAG000680I	
19	Deco, Hinge(R)	I	MDAJ001150I	
18	Deco, Hinge(L)	I	MDAJ001140I	
17	Tape, Protection(FLIP)	I	MTAB024100I	
16	Tape, Protection(WINDOW)	I	MTAB023380I	
15	Button, Side(END)	I	MBJL005310I	
14	Button, Side(Music)	I	MBJL005320I	
13	Cap, Earphone jack	I	MCCC005280I	
12	Shaft	I	MSIY000160I	
11	Cover, Front	I	MCJK008440I	
10	Cap, Multimedia Card	I	MCCG001120I	
9	Button, Side(Volume)	I	MBJL005350I	
8	Button, Side(Hold)	I	MBJL005340I	
7	Deco, Front	I	MDAG003490I	
6	Bracket	I	MBFZ003050I	
5	Filter, Receiver	I	MFBG002540I	
4	Deco, Window	I	MDAL000840I	
3	Tape, Deco(Window)	I	MTAA015410I	
2	Tape, Window	I	MTAD008240I	
1	Window, LCD	I	MWAC009450I	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK



ASS'Y EXPLODED VIEW



7	Cover, Battery	1	MCJA0059301	
6	BATTERY PACK	1	SBPL0092906	
5	Screw	4	GMZZ0017701	
4	Cover Assy, Rear	1	ACGM0108501	
3	PCB ASSY,MAIN	1	SAFY0260601	
2	Keypad, Main	1	MKAG0006801	
1	Cover Assy, Front	1	ACGK0106501	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

### 14.2 Replacement Parts <Mechanic component>

**Note:** This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		GSM,BAR/FILP	TGSM0060004		DARK BROWN	
2	AAAY00	ADDITION	AAAY0306102		DARK BROWN	
3	MCJA00	COVER,BATTERY	MCJA0059301	MOLD, PC LUPOY SC-1004ML, , , , ,	White	G, 42
2	APEY00	PHONE	APEY0566202		DARK BROWN	
3	ACGK01	COVER ASSY,FRONT	ACGK0106501		Without Color	A
4	ACGF00	COVER ASSY,FLIP	ACGF0004401		Without Color	
5	ABGG00	BUTTON ASSY,SUB	ABGG0001901		Without Color	44
5	MCJG00	COVER,FLIP	MCJG0002901	COMPLEX, (empty), , , , ,	Without Color	49
5	MDAB00	DECO,FLIP	MDAB0000901	COMPLEX, (empty), , , , ,	Aluminum Silver	43
6	BFAA00	FILM,INMOLD	BFAA0085501	; ,MEATAL SILVER , , ,	Aluminum Silver	
5	MHFA00	HINGE,FLIP	MHFA0000401	COMPLEX, (empty), , , , ,	Without Color	46
5	MHFA01	HINGE,FLIP	MHFA0000501	COMPLEX, (empty), , , , ,	Without Color	47
5	MMAA00	MAGNET,SWITCH	MMAA0009801	COMPLEX, (empty), , , , ,	Silver	45
5	MSGY00	TAPE,DECO	MTAA0156001	COMPLEX, (empty), , , , ,	Transparent	48
4	MBFZ00	BRACKET	MBFZ0030501	COMPLEX, (empty), , , , ,	Silver	6
4	MBJL00	BUTTON,SIDE	MBJL0053501	COMPLEX, (empty), , , , ,	Without Color	9
4	MBJL01	BUTTON,SIDE	MBJL0053101	COMPLEX, (empty), , , , ,	Without Color	15
4	MBJL02	BUTTON,SIDE	MBJL0053201	COMPLEX, (empty), , , , ,	Without Color	14
4	MBJL03	BUTTON,SIDE	MBJL0053401	COMPLEX, (empty), , , , ,	Without Color	8
4	MCCC00	CAP,EARPHONE JACK	MCCC0052801	COMPLEX, (empty), , , , ,	Without Color	13
4	MCCG00	CAP,MULTIMEDIA CARD	MCCG0011201	COMPLEX, (empty), , , , ,	Without Color	10

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MCJK00	COVER,FRONT	MCJK0084401	MOLD, PC LUPOY SC-1004ML, , , ,	Without Color	11
4	MDAG00	DECO,FRONT	MDAG0034901	MOLD, POM TX-31, , , ,	DARK BLUE	7
4	MDAJ00	DECO,HINGE	MDAJ0011501	MOLD, POM TX-31, , , ,	Without Color	19
4	MDAJ01	DECO,HINGE	MDAJ0011401	MOLD, POM TX-31, , , ,	DARK BLUE	18
4	MDAL00	DECO,WINDOW	MDAL0008401	MOLD, PC LUPOY SC-1004ML, , , ,	DARK BLUE	4
4	MFBB00	FILTER,RECEIVER	MFBB0025401	COMPLEX, (empty), , , ,	Without Color	5
4	MPBG00	PAD,LCD	MPBG0073701	COMPLEX, (empty), , , ,	Without Color	21
4	MPBQ00	PAD,LCD(SUB)	MPBQ0035601	COMPLEX, (empty), , , ,	Without Color	50
4	MSIY00	SHAFT	MSIY0001601	CUTTING, STS, , , ,	Without Color	12
4	MTAA01	TAPE,DECO	MTAA0154101	COMPLEX, (empty), , , ,	Without Color	3
4	MTAB00	TAPE,PROTECTION	MTAB0233801	COMPLEX, (empty), , , ,	Transparent	16
4	MTAB01	TAPE,PROTECTION	MTAB0234201	COMPLEX, (empty), , , ,	Green	51
4	MTAB02	TAPE,PROTECTION	MTAB0241001	COMPLEX, (empty), , , ,	Transparent	17
4	MTAD00	TAPE,WINDOW	MTAD0082401	COMPLEX, (empty), , , ,	Without Color	2
4	MWAC00	WINDOW,LCD	MWAC0094501	COMPLEX, (empty), , , ,	Without Color	1
5	BFAA00	FILM,INMOLD	BFAA0085401	; ,MEATAL SILVER , , ,	Aluminum Silver	
3	ACGM	COVER ASSY,REAR	ACGM0108501		Without Color	D
4	MCCF00	CAP,MOBILE SWITCH	MCCF0049601	COMPLEX, (empty), , , ,	Without Color	39
4	MCJN00	COVER,REAR	MCJN0081601	MOLD, PC LUPOY SC-1004ML, , , ,	White	35
4	MFBC00	FILTER,SPEAKER	MFBC0037401	COMPLEX, (empty), , , ,	Without Color	34
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	54
4	MPBJ00	PAD,MOTOR	MPBJ0052301	COMPLEX, (empty), , , ,	Black	55
4	MPBN00	PAD,SPEAKER	MPBN0054301	COMPLEX, (empty), , , ,	Black	31
4	MPBT00	PAD,CAMERA	MPBT0054001	COMPLEX, (empty), , , ,	Without Color	33
4	MPBZ00	PAD	MPBZ0201601	COMPLEX, (empty), , , ,	Black	

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MTAK00	TAPE,CAMERA	MTAK0008401	COMPLEX, (empty), , , , ,	Without Color	36
4	MWAE00	WINDOW,CAMERA	MWAE0033001	CUTTING, PMMA MR 200, , , , ,	Black	38
3	GMZZ00	SCREW MACHINE	GMZZ0017701	1.4 mm,3.0 mm,MSWR3 ,N ,+ , - ,	Silver	E, 40
3	MKAG00	KEYPAD,MAIN	MKAG0006801	COMPLEX, (empty), , , , ,	Without Color	B, 20
3	MLAK00	LABEL,MODEL	MLAK0010808	PRINTING, (empty), , , , ,	Without Color	
5	ACKA00	CAN ASSY,SHIELD	ACKA0007001		Silver	
6	MCBA00	CAN,SHIELD	MCBA0028501	PRESS, STS, 0.3T, , , , ,	Without Color	28
6	MLAZ00	LABEL	MLAZ0040401	WEEE Marking Label	Without Color	52
6	MPBU00	PAD,CONNECTOR	MPBU0020401	COMPLEX, (empty), , , , ,	Without Color	29
6	MTAZ00	TAPE	MTAZ0209101	COMPLEX, (empty), , , , ,	Without Color	30
5	ADCA00	DOME ASSY,METAL	ADCA0079301		Without Color	23
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

### <Main component>

**Note:** This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	ENSY00	CONN, SOCKET	ENSY0015401	9 PIN, ETC, , mm, SD Adaptor for TFR		
4	SNGF00	ANTENNA, GSM, FIXED	SNGF0034801	3.0, -2.0 dBd, , internal, bluetooth, , SINGLE, -2.0, 50, 3.0		53
4	SUSY00	SPEAKER	SUSY0025801	PIN, 8 ohm, 89 dB, 16 mm, , , , , , CONTACT		32
3	SAFY00	PCB ASSY, MAIN	SAFY0260617		DARK BLUE	C
4	SAFB00	PCB ASSY, MAIN, INSERT	SAFB0083403			
5	SJMY00	VIBRATOR, MOTOR	SJMY0008410	3 V, .08 A, 10*2.7, 17mm elco8000, , 3V, , , 12500, , , ,		27
5	SNGF00	ANTENNA, GSM, FIXED	SNGF0036901	3.0, -2.0 dBd, , internal, GSM850/1800/1900, , TRIPLE, -2.0, 50, 3.0		25
5	SPKY00	PCB, SIDEKEY	SPKY0057001	POLYI, 0.2 mm, DOUBLE, KM330 HOLD SIDEKEY, , , , , , , ,		56
5	SPKY01	PCB, SIDEKEY	SPKY0057101	POLYI, 0.2 mm, DOUBLE, KM330 VOLUME SIDEKEY, , , , , , , ,		57
5	SPKY02	PCB, SIDEKEY	SPKY0063101	POLYI, 0.2 mm, DOUBLE, , , , , , , , , ,		58
5	SVCY00	CAMERA	SVCY0017601	CMOS, MEGA, 1.3M, Siliconfile(1/4"), 8x8x5t, Socket Type		26
5	SVLM00	LCD MODULE	SVLM0028501	MAIN, 240*320 (2.0"), 37.2*52.1*1.7(t), 262k, TFT, TM, LGDP4532 (LGSIC),		22
4	SAFF00	PCB ASSY, MAIN, SMT	SAFF0176017		DARK BLUE	24
5	SAFC00	PCB ASSY, MAIN, SMT BOTTOM	SAFC0109003		DARK BLUE	
6	BAT100	BATTERY, CELL, LITHIUM	SBCL0001701	2 V, 0.5 mAh, CYLINDER, Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
6	C100	CAP, CERAMIC, CHIP	ECCH0000198	2.2 uF, 6.3V, M, X5R, TC, 1005, R/TP		
6	C101	CAP, CERAMIC, CHIP	ECCH0004904	1 uF, 6.3V, K, X5R, TC, 1005, R/TP		
6	C102	CAP, CERAMIC, CHIP	ECCH0004904	1 uF, 6.3V, K, X5R, TC, 1005, R/TP		
6	C103	CAP, CHIP, MAKER	ECZH0001503	0.47 uF, 10V, Z, Y5V, HD, 1608, R/TP		
6	C104	CAP, CERAMIC, CHIP	ECCH0000198	2.2 uF, 6.3V, M, X5R, TC, 1005, R/TP		
6	C105	CAP, CERAMIC, CHIP	ECCH0000198	2.2 uF, 6.3V, M, X5R, TC, 1005, R/TP		
6	C106	CAP, CHIP, MAKER	ECZH0004402	100000 pF, 16V, Z, X7R, TC, 1005, R/TP, , , [empty], [empty], [empty], [empty], [empty]		
6	C107	CAP, CHIP, MAKER	ECZH0001215	1 uF, 10V, K, X5R, TC, 1005, R/TP		
6	C108	CAP, CERAMIC, CHIP	ECCH0009216	22 pF, 25V, J, X7R, TC, 0603, R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C109	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
6	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty]		
6	C119	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP		
6	C120	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C125	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty]		
6	C127	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty]		
6	C128	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , [empty] ,[empty] , [empty] , [empty] , [empty] , [empty]		
6	C129	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C130	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C134	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , 0.85t ,[empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C135	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , 0.85t ,[empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C136	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C141	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C200	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C201	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0009110	22 nF,6.3V ,K ,X7R ,TC ,0603 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C207	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C218	CAP,TANTAL,CHIP	ECTH0005202	100 uF,4V ,M ,L_ESR ,2012 ,R/TP ; , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C219	CAP,TANTAL,CHIP	ECTH0005202	100 uF,4V ,M ,L_ESR ,2012 ,R/TP ; , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
6	C221	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0000146	1.8 nF,50V,K,X7R,HD,1005,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0000146	1.8 nF,50V,K,X7R,HD,1005,R/TP		
6	C230	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C231	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0009520	15 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C236	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C238	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C243	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C244	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C245	CAP,CHIP,MAKER	ECZH0025920	1000 pF,16V ,K ,X7R ,HD ,0603 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C300	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C301	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C303	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C305	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C306	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ; , , [empty] [empty] , - 55TO+125C , , [empty] [empty] , [empty] [empty]		
6	C307	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C313	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C315	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		



## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C316	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C319	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C321	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0009520	15 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C326	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C327	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C332	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V ,Z ,X7R ,TC ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
6	C333	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C334	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C338	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C339	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C342	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C343	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C344	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C345	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C346	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C347	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C348	CAP,CERAMIC,CHIP	ECCH0009515	150 pF,25V ,K ,X7R ,HD ,0603 ,R/TP		
6	C349	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C350	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C351	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C352	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C405	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C415	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C500	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C506	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C509	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C511	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C512	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C513	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C514	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C516	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C517	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C518	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C519	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C521	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C523	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C524	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C525	CAP,CHIP,MAKER	ECZH0004402	100000 pF,16V,Z,X7R,TC,1005,R/TP,,,[empty] ,[empty],[empty],[empty],[empty],[empty]		
6	C526	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V,M,X5R,TC,1005,R/TP		
6	C527	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V,K,X7R,HD,1005,R/TP		
6	C529	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V,M,X5R,TC,1005,R/TP		
6	C538	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V,J,NP0,TC,1005,R/TP		
6	C542	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V,B,NP0,TC,1005,R/TP		
6	C543	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V,J,NP0,TC,1005,R/TP		
6	C548	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V,J,NP0,TC,1005,R/TP		
6	C549	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C551	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V,B,NP0,TC,1005,R/TP		
6	C552	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V,C,NP0,TC,1005,R/TP		
6	C553	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V,C,NP0,TC,1005,R/TP		
6	C554	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V,C,NP0,TC,1005,R/TP		
6	C555	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V,C,NP0,TC,1005,R/TP		
6	C560	CAP,TANTAL,CHIP	ECTH0004804	33 uF,10V,M,L_ESR,3216,R/TP		
6	C561	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V,K,X7R,HD,1005,R/TP		
6	C562	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V,K,X5R,TC,1005,R/TP		
6	C563	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C564	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C565	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C566	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C569	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V,K,X5R,TC,0603,R/TP		
6	C570	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C571	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C572	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C574	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V,K,X5R,TC,1608,R/TP		
6	C576	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V,J,X7R,TC,0603,R/TP		
6	C577	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V,J,NP0,TC,1005,R/TP		
6	C591	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V,J,NP0,TC,1005,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C592	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C593	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C594	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	CN300	CONNECTOR,ETC	ENZY0019801	3 PIN, mm,ETC , ,3 PIN, 1.9 mm, ETC , ,Battery Connector		
6	CN301	CONNECTOR,I/O	ENRY0006401	18 PIN,0.4 mm,ANGLE , ,H=2.5, Reverse Type		
6	CN303	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	CN402	CONNECTOR,BOARD TO BOARD	ENBY0045701	40 PIN,.4 mm,STRAIGHT , , , , ,0.40MM ,STRAIGHT ,FEMALE ,SMD ,[empty] , ,		
6	D100	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		
6	D101	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	D102	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	D303	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
6	FB300	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB301	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB302	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB303	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB304	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB305	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB306	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB500	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB501	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL400	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL401	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL402	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL500	FILTER,DIELECTRIC	SFDY0002601	2450 MHz,2.0*1.25*1.0 ,SMD ,2400M~2500M, IL 3.8, 8pin, U-B, 34.2_j95, BT (CSR BC41B143A) , ,BPF ,2450 ,100 ,SMD ,R/TP		
6	J301	CONN,SOCKET	ENSY0018701	6 PIN,ETC , ,2.54 mm,H=1.8		
6	J302	CONN,JACK/PLUG, EARPHONE	ENJE0006701	4 ,5 PIN, , , ,4P ,4P ,ANGLE ,[empty] , ,BLACK ,		
6	L100	INDUCTOR,CHIP	ELCH0004722	47 nH,J ,1005 ,R/TP ,		
6	L101	INDUCTOR,CHIP	ELCH0004722	47 nH,J ,1005 ,R/TP ,		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L102	INDUCTOR,CHIP	ELCH0004722	47 nH,J ,1005 ,R/TP ,		
6	L103	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		
6	L104	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		
6	L200	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L201	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L202	INDUCTOR,SMD,POWER	ELCP0010001	2.2 uH,M ,2.5x2.0x1.0 ,R/TP ,chip MLCI ; , ,20% , , , , ,NON SHIELD ,2.5X2X1MM ,[empty] ,R/TP		
6	L203	INDUCTOR,SMD,POWER	ELCP0010001	2.2 uH,M ,2.5x2.0x1.0 ,R/TP ,chip MLCI ; , ,20% , , , , ,NON SHIELD ,2.5X2X1MM ,[empty] ,R/TP		
6	L300	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L301	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L302	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L303	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L306	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L308	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L309	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L312	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L313	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L314	INDUCTOR,CHIP	ELCH0003825	56 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L315	INDUCTOR,CHIP	ELCH0003825	56 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L316	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L400	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L401	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L402	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L501	INDUCTOR,CHIP	ELCH0004730	33 nH,J ,1005 ,R/TP ,		
6	L502	INDUCTOR,CHIP	ELCH0003823	470 nH,K ,1608 ,R/TP ,chip coil,PBFREE		
6	L503	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
6	L504	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
6	L505	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
6	L506	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
6	L507	INDUCTOR,CHIP	ELCH0001402	18 nH,J ,1005 ,R/TP ,Pb Free		
6	L508	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L509	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L510	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L511	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L512	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L513	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
6	L514	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
6	L515	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
6	L516	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,		
6	L517	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,		
6	L518	INDUCTOR,CHIP	ELCH0009117	10 nH,J ,1005 ,R/TP ,Chip coil		
6	L519	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	MIC400	MICROPHONE	SUMY0010604	UNIT , -38 dB,4.72*3.76 ,1.25T Bottom Silicon type , , , ,UNI ,1.5V , ,SMD		
6	Q400	TR,BJT,NPN	EQBN0013701	EMT6 ,150 mW,R/TP ,DUAL TRANSISTORS		
6	Q401	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	Q402	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	R104	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J ,1005,R/TP		
6	R105	RES,CHIP	ERHY0000166	390 Kohm,1/16W ,F ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP	ERHY0009536	100 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R110	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R111	RES,CHIP	ERHY0009522	3.3 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R112	RES,CHIP	ERHY0009522	3.3 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R113	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000519	9100 ohm,1/16W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R118	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R119	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R120	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R122	RES,CHIP	ERHY0009517	22 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R123	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R126	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R127	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R203	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R204	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R205	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R206	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R209	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R210	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R211	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R212	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R213	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R214	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000220	1500 ohm,1/16W ,F ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000220	1500 ohm,1/16W ,F ,1005 ,R/TP		
6	R217	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000414	120 Kohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R222	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R224	RES,CHIP	ERHY0000189	3.9 Kohm,1/16W ,F ,1005 ,R/TP		
6	R226	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R227	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R228	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R229	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R231	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R232	RES,CHIP	ERHY0009561	56 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R233	RES,CHIP	ERHY0009561	56 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R234	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R235	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R236	RES,CHIP	ERHY0009561	56 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R237	RES,CHIP	ERHY0009561	56 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R300	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R301	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000431	18 Kohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP	ERHY0011901	47 mohm,1/4W ,F ,2012 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R309	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R317	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000224	16 Kohm,1/16W ,F ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000268	33 Kohm,1/16W ,F ,1005 ,R/TP		
6	R321	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R325	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J ,1005 ,R/TP		



## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R421	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R423	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R424	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R425	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R426	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R427	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R428	RES,CHIP,MAKER	ERHZ0000420	150 ohm,1/16W ,J , 1005 ,R/TP		
6	R429	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J , 1005 ,R/TP		
6	R430	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R431	RES,CHIP,MAKER	ERHZ0000467	330 Kohm,1/16W ,J , 1005 ,R/TP		
6	R432	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J , 1005 ,R/TP		
6	R434	RES,CHIP	ERHY0000298	3.3M ohm,1/16W,J,1005,R/TP		
6	R435	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J , 1005 ,R/TP		
6	R436	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J , 1005 ,R/TP		
6	R437	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R501	RES,CHIP	ERHY0000132	22K ohm,1/16W,F,1005,R/TP		
6	R502	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
6	R503	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J , 1005 ,R/TP		
6	R505	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R506	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R507	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R508	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R509	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R510	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R512	RES,CHIP,MAKER	ERHZ0000456	2.2 ohm,1/16W ,J , 1005 ,R/TP		
6	R514	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F , 1005 ,R/TP		
6	R515	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J , 1005 ,R/TP		
6	R520	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J , 1005 ,R/TP		
6	R522	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J , 1005 ,R/TP		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R523	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R524	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R525	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R526	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R528	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	R534	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R535	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R536	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R590	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R591	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R592	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R593	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R594	RES,CHIP	ERHY0009530	560 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R603	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R604	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R606	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	S1	CONN,SOCKET	ENSY0020901	8 PIN,STRAIGHT , , mm,		
6	SW500	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2		
6	U100	IC	EUSY0294203	FBGA ,107 PIN,ETC ,FULLY 1.8V 1G(128Mx8) NAND+512M(32Mx16) SDRAM ,; ,IC,MCP		
6	U101	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U102	IC	EUSY0347801	BGA ,293 PIN,R/TP ,EDGE RF BB PM Onechip BB ,; ,IC,Digital Baseband Processor		
6	U200	IC	EUSY0263301	SC-88(2.0x2.1) ,6 PIN,R/TP ,Single SPDT Switch, Pb Free		
6	U201	IC	EUSY0356801	CSP ,42 PIN,R/TP ,Audio DAC with Class AB,D dual speaker driver ,; ,IC,Audio Codec		
6	U202	IC	EUSY0290901	144-ball FPBGA TCC872 ,144 PIN,R/TP ,TCC870+16Mb SDRAM		
6	U204	IC	EUSY0270602	MICRO SMD ,24 PIN,R/TP ,2BUCK 2LDO,2.5x2.5 ,; ,IC,Sub PMIC		
6	U300	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U301	IC	EUSY0286901	SOT23-5 ,5 PIN,R/TP ,2.5V Sense voltage(max), current monitor		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R523	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R524	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R525	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R526	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R528	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	R534	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R535	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R536	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R590	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R591	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R592	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R593	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R594	RES,CHIP	ERHY0009530	560 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R603	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R604	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R606	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	S1	CONN,SOCKET	ENSY0020901	8 PIN,STRAIGHT , , mm,		
6	SW500	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2		
6	U100	IC	EUSY0294203	FBGA ,107 PIN,ETC ,FULLY 1.8V 1G(128Mx8) NAND+512M(32Mx16) SDRAM ,; ,IC,MCP		
6	U101	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U102	IC	EUSY0347801	BGA ,293 PIN,R/TP ,EDGE RF BB PM Onechip BB ,; ,IC,Digital Baseband Processor		
6	U200	IC	EUSY0263301	SC-88(2.0x2.1) ,6 PIN,R/TP ,Single SPDT Switch, Pb Free		
6	U201	IC	EUSY0356801	CSP ,42 PIN,R/TP ,Audio DAC with Class AB,D dual speaker driver ,; ,IC,Audio Codec		
6	U202	IC	EUSY0290901	144-ball FPBGA TCC872 ,144 PIN,R/TP ,TCC870+16Mb SDRAM		
6	U204	IC	EUSY0270602	MICRO SMD ,24 PIN,R/TP ,2BUCK 2LDO,2.5x2.5 ,; ,IC,Sub PMIC		
6	U300	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U301	IC	EUSY0286901	SOT23-5 ,5 PIN,R/TP ,2.5V Sense voltage(max), current monitor		

## 14. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	X101	X-TAL	EXXY0018701	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9		
6	X200	X-TAL	EXXY0017801	12 MHz,50 PPM,8 pF,80 ohm,SMD ,3.2*2.5*0.75 ,20ppm at 25°C, 30ppm at -30°C ~ +85°C		
5	SAFD01	PCB ASSY,MAIN,SMT TOP	SAFD0107701		DARK BLUE	
6	LD400	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD401	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD402	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD403	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD404	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD405	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD406	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD407	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD408	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD409	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD410	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD411	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD412	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD413	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD414	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	LD415	DIODE,LED,CHIP	EDLH0011901	WHITE ,1608 ,R/TP ,PB-FREE(ZENER)		
6	R307	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R409	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		



## 14. EXPLODED VIEW & REPLACEMENT PART LIST

### 14.3 Accessory

**Note:** This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0092904	3.7 V,800 mAh,1 CELL,PRISMATIC ,KM500 Mexico BATT, Pb-Free ,; ,3.7V ,800mAh ,0.2C ,PRISMATIC ,50x34x36 , ,BLACK ,Innerpack ,Mexico Label	Black	F, 41
3	SGDY00	DATA CABLE	SGDY0010904	; ,[empty] ,[empty] ,[empty] ,18 ,BLACK ,6.2mm Plug Datacable ,[empty]		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003719	; ,RMS 20mW(0.56V,RMS) ,16 ohm +/- 2.4 ohm 1KHZ ,116dB +/- 3dB 1KHZ,3mW ,116dB 1KHZ ,96dB 100HZ ,[empty] ,BLACK ,18P MMI CONNECTOR ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0028301	100-240V ,5060 Hz,5.6 V,.4 A,UL ,AC-DC Adaptor ,; ,85Vac~264Vac ,5.6V (+/-0.8V) ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0028302	100-240V ,5060 Hz,5.6 V,.4 A,UL ,AC-DC Adaptor ,; ,85Vac~264Vac ,5.6V +/-0.8V ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

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